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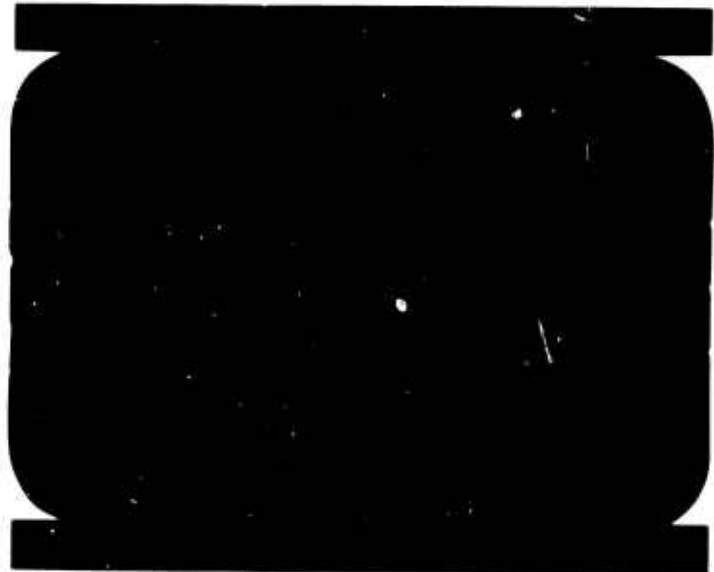
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**GENERAL DYNAMICS**

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AD844035

MERCURY  
TEST SUMMARY  
FOR  
MAJOR CRITICAL COMPONENTS  
AIRBORNE EQUIPMENT  
AE61-0512-9  
1 February 1962

GENERAL DYNAMICS/ASTRONAUTICS  
PREPARED BY SYSTEMS ENGINEERING

GENERAL DYNAMICS  
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G. L. Armstrong		510-00	R. G. Camp, Jr.	567-10
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O. C. Priest		522-30	K. E. Newton (AMR)	571-1
G. L. Hansen		530-00	C. C. Campbell	146-50
Systems Engineering	(20)	531-30	J. B. Nelson	145-80
R. I. Kreisler/			W. B. Otto	146-10
J. Luster		535-30	A. H. Lakritz	146-50
W. R. Buevens		535-50	V. L. Hettinger	567-60
R. H. Nicholson/AMR/(2)		571-40	H. H. Mishler	342-10
G. W. Conrey		564-10	J. F. Wambolt	GD/A Aerospace
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#### REFERENCES

- (a) AFMBO letter MCPTC:JMP:law, PRO 13, dated 29 January 1958, Subject: "Contract AF04(645)-4. Environmental Requirements and Test Procedures for WS 107A-1 Equipments. Convair Specification 7-00210 dated 15 October 1957"
- (b) Convair letter MR:OCP:emp, 531-3015, dated 22 November 1957. Subject: "Contract AF04(645)-4, Environmental Testing of Convair Furnished Equipment"
- (c) Convair Specification 7-00209B, dated 1 March 1958, Addendum I, dated 5 January 1961, "Environmental Design Conditions and Environmental Test Procedures for WS 107A-1 Equipments"
- (d) Convair Specification 7-00210B, dated 1 May 1958, "Environmental Requirements and Test Procedures for WS 107A-1 Equipments"
- (e) Contract AF04(647)-699, CCN 70; Sales Order 89-1-71.
- (f) Contract AF04(647)-635, CCN 85; Sales Order 92-1-79.
- (g) Contract AF04(647)-299, CCN 721; Sales Order 11-1-577.
- (h) AZR-27-001, Test Status Report.

1.0 OBJECTIVE

This report presents the qualification or approval status of major critical components on the Mercury portion of WS107A-1. All components are operating, non-standard, airborne CFE components.

This report is submitted in compliance with:

S.O. 11-1-577, CCN 721 of contract AF04(647)-299

S.O. 92-1-79, CCN 85 of contract AF04(647)-635

S.O. 89-1-71, CCN 70 of contract AF04(647)-699

## 2.0 SUMMARY

There are 148 major critical components included in this report. One hundred-thirty-nine (139) are subject to qualification testing. The test statuses of components subject to test are:

### Qualified by:

PPT	42
FPT	8
BOS	56
Other	
SFCW	1
Evaluation tests (Modified commercial parts)	7
Similarity to qualified units, plus additional tests	15
Validation tests	5
Total	<u>134</u>

### To be Qualified by:

PPT	2
FPT	0
BOS	2
Other	
Similarity to qualified units, plus additional tests	0
Total	<u>4</u>

### Not to be used:

Rejected for missile use (Design not acceptable)	1
Additional testing required	<u>0</u>
Total	<u>1</u>
	Total 139

2.1 No additional types of components were added in this issue.



### 3.0 CODING

Column entries in the summary sheets reflect pertinent information as described in paragraph 3.1 through paragraph 3.8.

#### 3.1 PART NUMBER Column

Part numbers, specification numbers, and vendors name are listed in the order indicated in the column heading. If a number is not applicable or a number has not been assigned, dashes will be entered to indicate such omission and maintain descending continuity.

#### 3.2 EFFECTIVITY Column

The effectivity of the listed part is indicated by the manufacturing sequence numbers for Mercury boosters.

#### 3.3 NOMENCLATURE Column

Nomenclature will be that appearing on the contractor's release records or drawings.

A QCDI entry in the lower part of the column indicates the item is listed in the current issue of Departmental Instruction 141-0-92, Quality Assurance Provisions Mercury Pilot Safety Program.

#### 3.4 MAD APPR Columns

Current CCN's do not require these entries and the entries are deleted. Column headings are deleted from the revised form. When significant changes are made on a page, the revised form will be utilized.

#### 3.5 CRIT COMP Column

This entry is replaced by a QCDI entry in the NOMENCLATURE column. (Refer to paragraph 3.3.) The column heading is deleted from the revised form. When significant changes are made on a page, the revised form will be used.

#### 3.6 QUAL BY Column

Entries in the QUAL BY column indicate the method by which the item is qualified. A "PPT" entry indicates that the item was or will be qualified by preproduction tests in accordance with Convair Specification 7-00209B. A "BOS" entry indicates that the item was or will be qualified on the basis of similarity to a previously-qualified item. An "FPT" entry indicates that the item was or will be flight proof tested in accordance with Convair Specification 7-00210B. An "OTH" entry indicates that the item was or will be qualified by means other than those given above.

### 3.7 TEST SCHED Column

Column entries indicate requirements for test schedules; they do not indicate requirements for testing. "Date" entries in the column indicate time spans for the test schedules. "Completed" entries indicate the test schedules are complete. "Not required" entries indicate schedules are not required; the entries do not indicate tests are not required since qualification may be demonstrated by similarity to previously qualified items or by another manner of qualification.

### 3.8 REVISION/ADDITION CODING

A horizontal bar inside the lower margin of a page indicates the page is new or revised for the current issue of the report. See example at bottom of this page.

## MERCURY

### MAJOR CRITICAL COMPONENTS

#### HYDRAULICS

There are 30 major critical components included in this section. Seventeen units were preproduction tested, one unit is not for missile use, and ten units were approved based on similarity to preproduction tested units and nine of the ten received some additional testing. Two other units will also be approved based on similarity to preproduction tested units, but still require some additional testing.

The 27-08573-1 actuator cylinder manufactured by the Bohanan company will not be used on any missiles because of inherent structural weaknesses. The actuator was included in the basic issue of this report in compliance with references e, f, and g.

The 27-08573-3 and 27-08574-801 vernier servo cylinders, manufactured by Clemco, have successfully passed PET tests and are considered by the Design Group to be satisfactory for flight use.

Relief-valve 27-08569-1, manufactured to original material design requirements of 17 Ph poppet and 52-100 chrome sleeve, successfully passed PET's. Prior to these tests, this unit was experiencing scoring and unstable operation, however, the problem has apparently been resolved. Similar scoring problems were experienced on the 27-08561-1 relief valve as above; however, it was determined thru tests that chrome plating the poppet will eliminate the scoring problem. This unit has also successfully passed recent PET's.

MERCURY TEST SUMMARY					HYDRAULICS		TEST SCHEDULE	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	START	COMPL		
27-08550-5 27-08550J 27-04202K Moog Valve M-7773	100D Only	Servo Cylinder - Booster Hydraulic	BOS	(12-61)  Approved based on similarity to 27-08550-1, which was preproduction tested and reported in Moog Report No. MR-322. The 27-08550-5 was approved on VAF MC 29093 dated 6-26-59.  NOTE  1. This unit reworked to a 27-87066-1 servo cylinder by service action which replaced the integral filter and servo valve orifice plate.  2. This unit is not to be used on Mercury vehicles.	Complete June 1959			

MERCURY TEST SUMMARY				HYDRAULICS		TEST SCHEDULE	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	START	COMPL	
27-08550-7 27-08550K 27-04202K Hydraulic Research Mfg. 104700-1	77D 88D 93D 103D 107D 109D 113D 130D 144D 152D 167D	Servo Cylinder - Booster Hydraulic	Oth	(5-61) (10-61)  Approved based on similarity to the 27-08550-1, which was preproduction tested, and by additional testing as required. Additional testing is reported in ETL reports, numbers 7A2311 and 7A576.  The basic differences between the -7 and the -1 are minor bleed port changes and a rod-end locking device which was functionally evaluated and tested in the -7 cylinder.  Specification was revised to K revision. Difference between K revision and the basic specification required additional calibration testing on the transducer which is a sub-component of the cylinder assembly.  GD/A design group approved PPT on VAF MC 36974, dated 9-8-59.	Complete	Sept. 1959	

MERCURY TEST SUMMARY					HYDRAULICS	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	TEST SCHEDULE	
					START	COMPL
27-08551-3 27-08551G 27-08503C BenBow-Pantex 8985	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Tank - Hydraulic Fluid, Booster, Type III	PPT	(6-61)  Three units S/N 1, S/N 2, and S/N 3 were pre-production tested. Results were reported in Wyle Lab Test Report 5840, Addendums I, II, and III.  GD/A design group approved PPT on 27-08551-3 in VAF MC 21925, dated 10-31-58.	Complete	Oct. 1958
		QC/DI				

MERCURY TEST SUMMARY				HYDRAULICS	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	TEST SCHEDULE
					START    COMPL
27-08552-5 27-08552H 27-08504C BenBow-Pantex 8983E	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Tank - Hydraulic Fluid, Sustainer, Type II	PPT	(6-61) Two units were preproduction tested to 27-08504C Specification. Results were reported in Wyle Labs Test Report 8188 Addendum I. GD/A design group approved PPT on 27-08552-5 in VAF 45313, dated 3-7-60.	Complete March 1960
		QCDI			

MERCURY TEST SUMMARY				HYDRAULICS		TEST SCHEDULE	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	START	COMPL	
27-08553-3 27-08553G 27-08507D Peacock Engineering 51305-3	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Accumulator - Hydraulic, Sustainer	PPT	(5-61) Two units S/N 1X and S/N 2X were preproduction tested by the Wyle Labs.  The PPT data and additional test requirements were included in Wyle Lab reports 5845, Addendums I, II, and III.  GD/A design group approved PPT in VAFS 45857 and 27813, dated 2-23-60.  <u>NOTE</u>  Unit is being investigated for possible redesign action to prevent leakage past the piston.	Complete	March 1959	
		QC DI					



## HYDRAULICS

A2497 (REV 11-61)

MERCURY TEST SUMMARY				HYDRAULICS		TEST SCHEDULE	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	START	COMPL	
27-08555-1 27-08555D 27-08511A Peacock Engineering 51285-1	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Coupling Assembly - Staging, Hydraulic Return	PPT	(6-61)  Two units S/N 1 and S/N 2 were preproduction tested to 27-08511 Specification. Results were reported in Wyle Test Lab Memo dated 10-15-58, Report 5961 dated 9-26-58 and TR-5841, Addendums I, II, and III.  PPT was approved on VAF MC 21559, dated 10-23-58.  Specification was revised to A revision. It differs from the basic specification in that the revised specification incorporates maximum weight of the valve and revised procedure for proof cycle test. These revisions were tested in later PET's of this unit.  Unit is mounted on the booster section, and used for sustainer hydraulic system.	Complete	Oct. 1958	
						QC DI	

MERCURY TEST SUMMARY					HYDRAULIC	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	TEST SCHEDULE	
27-08555-3 27-08555D 27-08511C Peacock Engineering 51285-3	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Coupling Assembly - Staging, Hydraulic Return	PPT	(6-61) (10-61)  Two units were preproduction tested to 27-08511A specification. Results were reported in Wyle Test Report 5841, Addendums I, II, and III.  GD/A design group approved PPT of 27-08555-3 in VAF MC 21560, dated 10-23-58.  Specification was revised to B and C revisions. They differ from the A revision in that B and C revisions incorporate maximum weight of the valve and a revised procedure for proof cycle test. These revisions have been tested in later PET's of this unit.  Unit is mounted on the sustainer section and is used for the sustainer hydraulic system.	Complete Nov. 1958	
QC DI						

### MERCURY TEST SUMMARY

## HYDRAULICS

PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	TEST SCHEDULE	
					START	COMPL
27-08556-3	77D	Coupling Assembly -	PPT	(6-61)	Complete	Oct.
27-08556D	88D	Staging, Hydraulic		Two units S/N 1 and S/N 2 were preproduction		1958
27-08511C	93D	Pressure		tested to 27-08511A specification. Results were		
Peacock	100D			reported in Wyle Test Report 5842, Addendums I,		
Engineering	103D			II, and III.		
51290-3	107D			GD/A design group approved PPT on 27-08556-3 in		
	109D			VAF 21562, dated 10-23-58.		
	113D			Specification was revised to B and C revisions.		
	130D			They differ from the A revision in that B and C		
	144D			incorporate maximum weight of the valve and a		
	152D			revised procedure for proof cycle test. These		
	167D			revisions have been tested in later PET's of		
				this unit.		
				Unit is mounted on the sustainer section and is		
				used for the sustainer hydraulic system.		



MERCURY TEST SUMMARY			HYDRAULICS		TEST SCHEDULE
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	
27-08557-1 27-08557 27-08510C Peacock Engineering 51295-1	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Coupling Assembly - Rise-Off, Hydraulic Return	PPT	(6-61) (10-61)  The unit was preproduction tested to revision A of the specification. Results were reported in in TR 5872.  GD/A design group approved the unit on VAF 21967, dated 11-1-58.  Specification was revised to C revision. The C revision differs from the A revision in that the weight of the unit was increased to reflect the actual unit and several other (minor) changes not affecting design or test requirements.  This unit passed search-for-critical-weakness tests on 4-9-59 and PET's on 5-3-60.  Unit is mounted on the launcher and is used for the booster hydraulic system.	Complete Nov. 1958
		QC DI			

MERCURY TEST SUMMARY					HYDRAULICS	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	TEST SCHEDULE	
					START	COMPL
27-08557-3 27-08557 27-08510C Peacock Engineering 51295-3	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Coupling Assembly - Rise-Off, Hydraulic Return	PPT	(6-61) (10-61)  The coupling was preproduction tested to specification 27-08510A and the results were reported in TR 194 on test specimens S/N 002 and S/N 003.  GD/A design group approved the testing on VAF MC 35157, dated 7-22-59.  Specification was revised to C revision. The C revision differs from the A revision in that the weight of the unit was increased to reflect the actual unit and several other (minor) changes not affecting design or test requirements.  Unit is mounted on the booster and is used for the booster hydraulic section.  This unit passed search-for-critical-weakness test on 4-9-59 and PET on 4-13-60.	Complete	Aug. 1959
		QC DI				

MERCURY TEST SUMMARY					HYDRAULICS	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	TEST SCHEDULE	
					START	COMPL
27-08558-1 27-08558 27-08510C Peacock Engineering 51300-1	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Coupling Assembly - Rise-Off, Hydraulic Pressure	PPT	(6-61) (10-61) The unit was preproduction tested to specification 27-08510A and results were reported in test report 5873, Addendum III. GD/A design group approved the unit on VAF's 23795 and 23796, dated 12-10-58.  Specification was revised to C revision. The C revision differs from the A revision in that the weight of the unit was increased to reflect the actual unit and several other (minor) changes not affecting design or test requirements.  This unit passed search-for-critical-weakness test on 3-9-61 and PET on 5-3-60.  Unit is mounted on the launcher and is used for the booster hydraulic system.	Complete	Dec. 1958
					QC DI	



MERCURY TEST SUMMARY			HYDRAULICS		TEST SCHEDULE
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	
27-08558-3 27-08558 27-08510C Peacock Engineering 51300-3	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Coupling Assembly - Rise-Off, Hydraulic Pressure	PPT (6-61)	<p>The unit was preproduction tested to specification 27-08510A. The data is presented in test report 5873, Addendum III.</p> <p>GD/A design group approved the unit on VAF's 23795 and 23796, dated 12-10-58.</p> <p>Specification was revised to C revision. The C revision differs from the A revision in that the weight of the unit was increased to reflect the actual unit and several other (minor) changes not affecting design or test requirements.</p> <p>This unit passed search-for-critical-weakness tests on 4-9-59 and PET on 10-19-60.</p> <p>Unit is mounted on the booster section and is used for the sustainer hydraulic system.</p>	Complete Dec. 1958
		QC DI			

MERCURY TEST SUMMARY				HYDRAULICS		TEST SCHEDULE
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	START	
27-08561-1 27-08561D 27-08501B Vinson A-80282	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Valve - Safety, Hydraulic Relief, Booster	PPT	(10-61)  This item was preproduction tested and results were reported in Vinson test report QTR 80282, Addendum I, and Garwood Lab Report 1588.  GD/A design group approved the 27-08561-1 valve in VAF 39330, dated 10-21-59.  <u>NOTE</u>  This unit has recently passed PET's using a chrome plated poppet.	Complete Oct. 1959	
		QCDI				

MERCURY TEST SUMMARY					HYDRAULICS	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	TEST SCHEDULE	
27-08563-3 27-08563F 27-08516D Interstate Engineering and Clemco 2425-103	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Cylinder - Hydraulic, Other Sustainer, Yaw		(6-61) (10-61)  The cylinder was approved based on similarity to 7-08286, which was preproduction tested, and by additional tests reported in TR 4547.  The 27-08563-3 cylinder differs from the 7-08286 in that the 27-08563-3 cylinder uses high temperature O-rings and the diameter of the piston orifice is larger.  The 27-08563-3 passed search-for-critical-weakness tests on 12-9-59. PET tests were completed in February 1960 and included temperature, vibration, life, and burst tests to specification 27-08516D requirements.  GD/A design group approved the 27-08563-3 specification 27-08516 on VAF MC 23585 dated 12-6-58.  The additional tests are the same as those shown under 27-08563-5, except that PET's on the -3 were completed in February 1960.	Complete March 1959	
					QC DI	

MERCURY TEST SUMMARY				HYDRAULICS		TEST SCHEDULE
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	START	
27-08563-5 27-08563F 27-08516D Interstate Engineering and Clemco 2725-1	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Cylinder - Hydraulic, Sustainer Pitch	Oth	(10-61)  The cylinder was approved based on similarity to 7-08286, which was preproduction tested. The test results were reported in Wyle Lab report 4547, Addendum A.  Cylinder 27-08563-5 differs from the 7-08286 in that the 27-08563-5 has a larger diameter piston orifice and uses hi-temperature O-rings.  The 27-08563-5 passed search-for-critical-weakness tests on 9 December 1959. PET tests were completed in April 1961 and included temperature, vibration, life, and burst tests to specification 27-08516D requirements.  GD/A design group approved the 27-08563-5 on VAF 23585 on 12-12-59.	Complete	Complete Dec. 1959
		QCDI				

MERCURY TEST SUMMARY					HYDRAULICS	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	TEST SCHEDULE	
					START	COMPL
27-08564-5	77D	Filter - Fluid,	PPT	(6-61) (10-61)	Complete	Sept.
27-08564	88D	Pressure, Hydraulic		The filter was preproduction tested and the test data presented in test report 2417A.		1960
27-08512D	93D					
64987	100D					
Purcator	103D			GD/A design group approved the filter tests on VAF MC 52493 and MC 55425, dated 9-12-60.		
Products	107D					
	109D			Filter is used as in-line pressure filter for vernier servo cylinders.		
	113D					
	130D					
	144D					
	152D					
	167D					
<p style="text-align: center;"><u>NOTE</u></p> <p>The 27-08564-5 filter was tested to C revision of specification; an additional test, bubble coefficient, is being conducted to satisfy the D revision.</p>						
QCDI						

MERCURY TEST SUMMARY					HYDRAULICS	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	TEST SCHEDULE	
					START	COMPL
27-08564-803 27-08564A 27-08512D Purolator Products 64988-1	103D 107D 109D 113D 130D 144D 152D 167D	Filter - Fluid, Hydraulic System, Missileborne	Other	(6-61) (10-61)  The filter was approved based on similarity to 27-08564-5 and -801, which were preproduction tested, and by additional tests presented in report 2417.  The 27-08564-803 filter differs from the -5 and -801 filters in that the -803 uses a weldable aluminum case to mount the filter instead of the 2024T4 used in the -5 and -801.  GD/A design group approved the 27-08564-803, specification 27-08512C, on VAF 27-08564-803 LA 001, dated 5-9-61.  Additional tests, bubble coefficient, are being conducted to satisfy D revision of the specification. Filter is mounted on the sustainer servo cylinder pressure inlet.  RAR 92-10-617, dated 7-6-60, references ECP 529 which recommends the replacement of the 27-08564-801 with 27-08564-803 filter, which is made of 6061 aluminum alloy. Effectivity was for all hardware still in existence; therefore it picked up 77D, 88D, 93D, and 100D effectivity for the -803 filter.	Complete	May 1961
		QC DI				

MERCURY TEST SUMMARY				HYDRAULICS		TEST SCHEDULE
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	START	
27-08566-1 27-08566B 27-08505R Vickers, Inc. AA-60694-R2A	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Pump - Hydraulic, Booster	BOS	(5-61) (10-61)  Approved based on similarity to 7-08207 which was preproduction tested to specification 7-08207D, per Vickers test order 13302, dated 2-8-57 and 13302-1, dated 6-4-57. Similarity was approved in VAF 5435, MC 20198 on 9-20-58, LA-001, 5-25-61.  Difference between 7-08207 and 27-08566-1 is an O-ring change for high temperature, and inlet and outlet port changes to agree to D system requirements.  Difference between the 7-08207D specification and 27-08505B specification calls for improved quality testing with special emphasis on degree of cleanliness for GD/A requirements.	Complete	Complete May 1961
QC DI						

MERCURY TEST SUMMARY				HYDRAULICS		TEST SCHEDULE
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	START	
27-08569-1 27-08569C 27-08501B Vinson Manufacturing A-61071	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Valve-Safety, Relief, Hydraulic	PPT	(6-61) (10-61)  Two relief valves were preproduction tested. The results were reported Wyle lab report 6608, dated 1-30-59, Vinson report QTR 61071, dated 9-15-60 and Garwood labs 1855, dated 8-8-60. The tests were conducted as required by the unit procurement specification 27-08501.  GD/A design group approved the 27-08569-1 valve on VAF LA-001 and LA-002 on 8-30-61/Vinson Manufacturing report QTR 61071, Addendums I, II, and III.	Complete May 1961	
				NOTE  1. PET tests of this unit, manufactured to original material requirements, 17 Ph poppet and 52-100 chrome sleeve, have been successfully accomplished.		
				QCDI		



MERCURY TEST SUMMARY				HYDRAULICS		TEST SCHEDULE
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	START	
27-08573-1 27-08573B 27-08519C Interstate 2792-1	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Cylinder-Actuator, Hydraulic, Inboard Vernier Pitch-roll	0th	(5-61) (10-61)  The actuator cylinder was qualified based on similarity to the 7-08243 actuator cylinder, which was preproduction tested, and by additional tests paragraph 4.4.1, 4.4.2, and 4.4.3 of the procurement specification 27-08519C. Additional tests are reported in test letter No. 9224 and TR No. 348.  The 27-08573-1 unit is similar to the 7-08243-1 except that the 27-08573-1 units use high temperature O-rings.  GD/A design group approved the 27-08573-1 on VAF MC 21809, dated 10-29-58.	Complete Oct. 1958	
				NOTE  This unit is alternate and interchangeable with the Clemco 27-08573-801.		
				QC DI		

MERCURY TEST SUMMARY			HYDRAULICS		TEST SCHEDULE
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	
27-08573-1 27-08573B 27-08519C Bohanan Company used 50006-001	Not to be	Cylinder - Actuator, Hydraulic, Inboard		(5-61) The Bohanan actuator 27-08573-1 is not to be used on any missile. The unit design has been rejected. Clemco (Interstate) is the only acceptable actuator.  Refer to Clemco (Interstate) 27-08573-1 and Clemco (Interstate) 27-08573-3 in this section.	

MERCURY TEST SUMMARY			HYDRAULICS	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P / N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	TEST SCHEDULE
27-08573-3	77D	Cylinder - Actuating,	BOS (10-61)  Approved based on similarity to the 27-08573-1 and 7-08243 units, which were preproduction tested, except that the 27-08573-3 design requirements specify nickel plated 4130 steel for the cylinder body and chrome plated 17-4 Ph stainless steel for the piston.  <u>NOTE</u>  This unit has successfully passed PET tests. It is considered, by the design group, to be satisfactory for flight use.  At the present time no additional qualification testing is planned, since this design is similar to 7-08243 and 27-08573-1, except that high temperature O-rings are used and material change, as indicated.	START COMPL
27-08573	93D	Vernier Hydraulic,		
27-08519C	103D	Pitch-Roll		
Clemco	107D			
	109D			
	113D			
	130D			
	144D			
	152D			
	167D			
			See Remarks	

## MERCURY TEST SUMMARY

## HYDRAULICS

EFFECTIVITY		QUALIFIED BY		NOMENCLATURE		REMARKS	TEST SCHEDULE	START COMPL
PART NUMBER	SPEC CONTROL	PROC SPEC	VENDOR NAME	VENDOR P N				
27-08574-1					77D	Cylinder - Actuator,		Complete
27-08574D					88D	Hydraulic, Outboard		Oct.
27-08519C					93D	Vernier Yaw		1958
Interstate					100D			
2778-1					103D			
					107D			
					109D			
					115D			
					130D			
					144D			
					152D			
					167D			
						The vernier actuator cylinder was qualified based on similarity to the 7-08283-3 actuator cylinder, which was preproduction tested, and by additional tests, paragraph 4.4.1, 4.4.3 of the procurement specification 27-08519C. Additional tests were reported in test letter report No. 9224-1.		
						The 27-08574-1 unit is similar to the 7-08283-3 unit except that the 27-08574-1 units use high temperature O-rings.		
						GD/A design group approved the 27-08574-1 on VAF MC 21808, dated 10-29-58.		
						NOTE		
						This unit is alternate and interchangeable with the Clemco 27-08574-80)		

QCDI

MERCURY TEST SUMMARY			HYDRAULICS		TEST SCHEDULE
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	START COMPL
27-08574-801	77D	Cylinder - Actuating,	BOS	(10-61)	See Remarks
27-08574	93D	Vernier Hydraulic,			
27-08519C	103D	Yaw			
Clemco	107D			Approved based on similarity to 27-08574-1 and 7-08283-3, except that the 27-08574-801 design requirements specify nickel plated 4130 steel for the cylinder body, and chrome plated 17-4 Ph stainless steel for the piston.	
	109D				
	113D				
	130D				
	144D				
	152D				
	167D				
NOTE					
1. This unit has recently successfully passed PET tests. Complete re-qualification of this unit is not planned because this design is similar to 7-08283-3, except for high-temperature O-rings and material change, as indicated.					
2. This unit is an alternate interchangeable unit with the 27-08574-1 if the -1 is manufactured by Interstate Engineering.					
QCDI					

MERCURY TEST SUMMARY			HYDRAULICS		TEST SCHEDULE
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	
27-08590-1	77D	Pump - Axial Piston,	PPT	(5-61) (10-61)	Complete Nov. 1959
27-08590A	88D	Hydraulic, Sustainer		Preproduction tests were performed on three pumps	
27-08529C	93D			S/N MX 15984, S/N MX 15983, and S/N MX 15985 by	
Vickers Inc.	100D			the GD/A ETL labs to the basic specification.	
AA60401-L-2	103D			The PPT data are recorded in report number	
	107D			7A2063, dated 7-29-59.	
	109D			GD/A design group approved PPT on VAF 40786,	
	113D			dated 11-23-59.	
	130D			Investigation of recent test failures of the	
	144D			unit have shown that casting flaws in the pump	
	152D			housing are resulting in pump mounting base	
	167D			failures. Units are being X-Rayed or Xylo	
				inspected to determine which pumps are acceptable	
				for flight.	
				This item is alternate and interchangeable with	
				the dash three (-3) unit.	
		QCDI			

MERCURY TEST SUMMARY					HYDRAULICS	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	TEST SCHEDULE	START COMPL
					See Remarks	
27-08590-3	77D	Pump - Axial Piston	See	(12-61)	<p>The 27-08590-3 pump is similar to the 27-08590-1; however, the unit may be retested to satisfy revision D of the specification.</p> <p>Basic difference between the -1 and -3 is the -3 has a modification to the shaft to prevent possible mounting pod interference.</p> <p>Investigation of recent test failure of the unit has shown that casting flaws in the pump housing are resulting in pump mounting base failures. Units are being X-Rayed or Xyglo inspected to determine which pumps are acceptable for flight.</p> <p>This unit is alternate and interchangeable with the dash one (-1) unit.</p> <p>The vendor is presently conducting X-Ray inspection of all pump housing castings prior to assembly and delivery of pumps.</p>	
27-08590A	103D	Hydraulic, Sustainer	Re-			
27-08529D	107D		marks			
Vickers Inc.	109D					
AA60401-L-2	113D					
	130D					
	144D					
	152D					
	167D					

## MERCURY TEST SUMMARY

## HYDRAULICS

EFFECTIVITY		NOMENCLATURE	QUALIFIED BY	REMARKS	TEST SCHEDULE
PART NUMBER	VENDOR P/N				START COMPLETION
27-85314-817		Sustainer Servo Cylinder Assembly, Yaw	Oth	(10-61) The 27-85314-817 sustainer servo cylinder assembly consists of a 27-08563-3 servo cylinder, 27-04208-1 servo valve, and 27-08564-803 filter.  The -817 replaced the 27-85314-811 assembly which utilized the 27-08564-801 filter which was subject to body cracks during vibration tests. RAR 92-10-617, dated 7-6-60, ECP 529 removed the -801 filters from all D and E series missiles still in existence.	Complete May 1961
- - - - -	- - - - -	77D			
- - - - -	- - - - -	88D			
- - - - -	- - - - -	93D			
GD/A		100D			
- - - - -	- - - - -	103D			
- - - - -	- - - - -	107D			
- - - - -	- - - - -	109D			
- - - - -	- - - - -	113D			
- - - - -	- - - - -	130D			
- - - - -	- - - - -	144D			
- - - - -	- - - - -	152D			
- - - - -	- - - - -	167D			

NOTE

1. For qualification of individual components listed above, see the components listed in Hydraulic and Autopilot Sections.
2. Release records show a -811 assembly as being effective for 77D, 88D, 93D, and 100D, although 88D, 93D, and 100D were flown with 27-08564-803 filters, which were replaced by AMR/RAR mentioned above. Missile 77D will also be modified to use the -803 filter, but again the installation dash number as in 88D, 93D, and 100D, will not be re-identified for just a paperwork change.

QCDI



MERCURY TEST SUMMARY				HYDRAULICS	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	TEST SCHEDULE
27-85314-819	77D	Sustainer Servo	Oth	(10-61)	START COMPL
- - - - -	88D	Cylinder Assembly,			Complete
- - - - -	93D	Pitch			May
GD/A	100D			The 27-85314-819 sustainer cylinder assembly consists of a 27-08563-5 servo cylinder, 27-04208-1 servo valve and 27-08564-803 filter.	1961
- - - - -	103D				
	107D			The -819 replaced the 27-85314-813 assembly which utilized the 27-08564-801 filter. The 27-08564-801 filter was subject to body cracks during vibration tests and was replaced by RAR 92-10-617 action dated 7-6-60. ECP 529 re-moved the -801 filters from all D and E series missiles still in existence.	
	109D				
	113D				
	130D				
	144D				
	152D				
	167D				

NOTE

- 1. For qualification of individual components listed above, see the components listed in Hydraulics and Autopilot Sections.
- 2. Release records show a -813 assembly as being effective for 77D, 88D, 93D, and 100D, but 88D, 93D, and 100D were flown with 27-08564-803 filters which were replaced by AMR/RAR, mentioned above. This assembly replacement changed the -813 assembly to -819. Missile 77D will also use the -803 filter, but again, the installation dash number, as in 88D, 93D, and 100D, will not be reidentified for just a paperwork change.

QC DI

MERCURY

MAJOR CRITICAL COMPONENTS

PNEUMATICS

All pneumatic major critical components have been approved. Two components, 27-08020-3 and 27-08116-11, were approved on the basis of similarity to other components which had been preproduction tested. The other components were preproduction tested.

MERCURY TEST SUMMARY				PNEUMATICS					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			QUAL BY	REMARKS	TEST SCHED	
			ENGR	IDE	INSTL			START	COMPL
27-08020-3 7-08020A 7-08204 N Peacock Engine- ering R-50502-105	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Valve Assembly, LO <sub>2</sub> Tank, Relief and Shutoff				BOS	(5-61) The 27-08020-3 valve was approved on the basis of similarity to 27-08020-1 per VAF 27-08020-3-LA-002, dated 3-17-61. The GD / A Design Group approved flight proof testing of 27-08020-1 per Wyle Lab. Report number 9305 in VAF 27-08020-1-LA-002, dated 12-12-60. Flight proof testing consisted of: 1. Temperature 2. Vibration to 6G 3. Life 4. Proof Pressure 5. Acceleration One sample of the 27-08020-1 was tested. The valves differ only in mounting flange configuration. (11-6j) Item was approved per revision M of the specification. Present specification is revision N. The N revision added vendor and vendor part numbers.	Completed March 1961	
		QCDI							

MERCURY TEST SUMMARY										PNEUMATICS		
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N		EFFECTIVITY	NOMENCLATURE	MAD APPR			CRIT COMP	QUAL BY	REMARKS	TEST SCHED		
				ENGR	IDE	INSTL				START	COMPL	
27-08103-3		77D	Valve-Pressure Relief,					PPT	(5/61)	Completed	Dec. 1959	
- - - -		88D	Oxidizer Tank						The 27-08103-3 valve was preproduction tested and results reported in Test Report 1078.			
27-08103F		93D							GD/A design group approved the 27-08103-3 valve in VAF MC 34447, dated 10-2-59.			
B. G. Hadley Co.		100D							Three samples were tested.			
10525-5		103D							(11-61)			
		107D							Item was tested to D revision of the Specification. Present specification is revision E. The E revision added vendor and vendor part number.			
		109D										
		113D										
		130D										
		144D										
		152D										
		167D										
27-08103			QCDI									

PNEUMATICS										
MERCURY TEST SUMMARY										
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD			CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			APPR	ENGR	INSTL				START	COMPL
27-08104-3	77D	Valve - Pressure					PPT	(5/61)	Completed	Oct. 1959
- - -	88D	Relief, Fuel Tank						The 27-08104-3 valve was preproduction tested. Results were reported in Test Report number 1079.		
27-08104D	93D							GD/A design group approved the 27-08104-3 /Specification 27-08104C in VAF MC 38418, dated 10-2-59.		
B. H. Hadley Co.	100D							Three samples were tested.		
10526-5	103D							(11-61)		
	107D							Item was tested to C revision of the specification. Present specification is revision D. The D revision added vendor and vendor part number.		
	109D									
	113D									
	130D									
	144D									
	152D									
	167D									
		QCDI								



MERCURY TEST SUMMARY											
PNEUMATICS											
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD			CRIT COMP	QUAL BY	REMARKS	TEST SCHED		
			ENGR	IDE	APPR				START	COMPL	
27-08115-1	77D	Sphere - Helium Storage, Missileborne					PPT	(5, 61)  The 27-08115-1 sphere was preproduction tested (Wyle Test Reports 6117, 6141, 6291).  GD/A design group approved testing for the 27-08115-1 sphere in VAF MC 39191, dated 10-19-59.  Specifications 27-08115 and 7-00209B have different vibration requirements. This requirement difference is covered by report AS-7-005A, Missile Structural Design Criteria. Approval was requested on 1-5-59 and granted per BMC letter LBCR-JMP-jkh, dated 3-18-59.  Three samples were tested.  (11-61)  Item was tested to J revision of this specification. Present specification is revision K. The K revision added vendor and vendor part number.	Completed		
27-08115K	88D									Oct. 1959	
Airite Products	93D										
6314	100D										
	103D										
	107D										
	109D										
	113D										
	130D										
	144D										
	152D										
	167D										
		QC DI									

MERCURY TEST SUMMARY				PNEUMATICS				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			APPR	ENGR				START COMPL
27-08115-7	77D	Sphere - Helium				PPT	(5/61)	Completed
27-08115K	88D	Storage, Missileborne					The 28-08115-7 Sphere was preproduction tested (Wyle Test Report 5959, unit S/Ns 5, 9, and 10).	Feb. 1961
Airite Products	93D						GD/A design group has approved testing of the 27-08115-7 Sphere per Specification 27-08115J in VAF 27-08115-7-1A-001, dated 2-17-61.	
6520	100D						Three samples were tested.	
	103D						(11-61)	
	107D						Item was tested to J revision of the specification. Present specification is revision K. Revision K added vendor and vendor part number.	
	109D							
	113D							
	130D							
	144D							
	152D							
	167D							
27-08115		QCDI						



MERCURY TEST SUMMARY										
PNEUMATICS										
PART NUMBER SPEC CONTROL PRGC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD			CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			APPR	ENGR	INSTL				START	COMPL
27-08116-11	77D	Valve - Shutoff, Motor					BOS	(5/61)	Completed	Dec.
— — — — —	88D	Operated								1959
27-08116D	93D							The 27-08116-11 valve was approved on basis of similarity to 7-08234-9 in VAF 40651, dated 12-59.		
Robertshaw	100D							Preproduction test results of 7-08234-9 were reported in Robertshaw Fulton Test Report 1098-PR-1 and approved in VAF MC 25653, dated 1-22-59.		
Fulton	103D							The 27-08116-11 valve per specification change C was approved in VAF MC 52487, dated 12-59.		
1098-22001	107D							(11-61)		
	109D							Item was approved per C revision of the specification. Present specification is revision D. Revision D added vendor name and vendor part number.		
	113D							MAD approved C revision of specification which deleted temperature-shock requirements and added a step to the temperature-humidity test. The added step was to do three steps of the proof cycle instead of the two originally required.		
	130D									
	144D									
	152D									
	167D									

MERCURY TEST SUMMARY					PNEUMATICS			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR	ENGR INSTL	CRIT COMP	QUAL BY	REMARKS	TEST SCHED
								START COMPL
27-08245-13 27-08245J 27-08101M (27-08101-25) B. H. Hadley Co. 10701-7	77D 88D 93D 100D 103D 107D 109D 113D 150D 144D 152D 167D	Regulator Assembly - Pressure, Oxidizer Tank				BOS	(5/61)  The 27-08245-13 (27-08101-25) regulator is specially tested but otherwise identical to the 27-08245-3 regulator. The 27-08245-13 regulators are selected for best transient response and maximum reliability for specific use on the Mercury program.  Similarity of the 27-08245-3 regulator to the 27-08101-1 is established by VAF 41967.  Two 27-08101-1 regulators were preproduction tested per Test Report numbers 1080 and 1081, and the results approved by VAF's 41254 and 41255, dated 12-7-59.  (11-61)  The item was approved per revision K of the specification. Revision M added vendor and vendor part number.	Completed Jan. 1960
27-08245		QC DI						

MERCURY TEST SUMMARY										PNEUMATICS	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD			CRIT COMP	QUAL BY	REMARKS	TEST SCHED		
			ENGR	IDE	APPR				START	COMPL	
27-08246-11 27-08246K 27-08102K (27-08102-17) B. H. Hadley Co. 10705-7	77D 88D 93D 100D 103D 107D 109D 113D 130D 144E 152D 167D	Regulator Assembly - Pressure, Fuel Tank					HOS	(5/61)  The 27-08246-11 regulator is specially tested but otherwise identical to the 27-08246-5 regulator. The 27-08246-11 regulators are selected for best transient response, and maximum reliability for specific use on the Mercury program.  Similarity of the 27-08246-5 regulator to 27-08102-1 is established by VAF 41966.  PPT of 27-08102-1 was approved by VAF 41256 per Test Reports 1082 and 1083, dated 10-12-59.  Two units were tested.  (11-61)  Item was approved per H revision of the specification. Present specification is K revision. K change revised some temperature requirements and pressures, but all changes made requirements less severe than previously.	Completed Jan. 1960		
		QCDI									

MERCURY TEST SUMMARY					PNEUMATICS				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			ENGR	INSTL				START	COMPL
27-08251-1 -- -- -- -- 27-08251E Menasco Mfg. 674000-501	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Sphere - Helium Storage				PPT	(5/61)  Three (S/N 86,88,96,) units of 27-08251-1 spheres were preproduction tested to the requirements of Specification 27-08251A per test reports A-218-1 and 8023.  GD/A design group approved the testing of 27-08251-1 unit/Specification 27-08251A on VAF 46044, dated 3-22-60.  (11-61)  Item was tested per revision C of the specification. Present specification is E revision and has not changed testing requirements.  (12-61)  Item is interchangeable alternate for 27-08115-1.	Completed March 1960	
27-08251		QCDI							

MERCURY TEST SUMMARY					PNEUMATICS			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		QUAL BY	REMARKS	TEST SCHED	
			APPR	ENGR			START	COMPL
27-08575-1 27-08575A 27-08520B Walter Kiddie Co. 891314	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Sphere - Pneumatic Pressure			PPT	(6-61)  The 27-08575-1 Sphere was preproduction tested. Results were reported in TR 1045 Addendum and R 1336.  GD/A design group approved the 27-08575-1 Sphere /Spec 27-08520 on VAF MC 25575 dated 1-17-59 and VAF MC 40798 dated 11-23-59.	Completed Nov. 1959	
27-08575		QCDI						

## MERCURY

### MAJOR CRITICAL COMPONENTS

#### PROPULSION

All components listed in this section have been preproduction tested or qualified on the basis of similarity to previously qualified units.

MERCURY TEST SUMMARY				PROPULSION					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			ENGR	INSTL				START	COMPL
7-02229-15 - - - 7-02229P Reaction Motors Inc. 311193	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Valve, Fuel Discon- nect (Forward Section)				PPT	(6/61)  One unit (serial number 16) qualified by Reaction Motors Inc.  The preproduction test was recorded in Report 67 (addendum A and B) and 70, appendix A and B.  CV/A design group approved VAF 49675 and 7-02229-B-LA-001. The preproduction tests deviated from 7-00209B in vibration tests ( $2G \pm 10\%$ rather than $2G + 10\% - 0\%$ ) and the sand and dust test was performed to MIL-E-5272.	Completed Dec. 1960	
		QC DI							

MERCURY TEST SUMMARY										PROPULSION	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			CRIT COMP	QUAL BY	REMARKS	TEST SCHED	START COMPL	
			ENGR	IDE	INSTL						
7-02281-15 7-02281E 7-02298M B.H. Hadley Co. 10576-15	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Valve, Sustainer Fuel Shutoff, Power Operated					0th	(5/61)  Approved on the basis of similarity to vendor's P/N 10576 plus additional tests to procurement specification requirements. Valves differ only as noted on vendor drawing and VIR M7-3228. The change included an improved actuator and a change in the Restrictor Orifice. CV/A design group approved the 7-02281-15 unit as noted on VAF MC 18607 and VIR M7-3228, dated 4-15-59.	Completed April 1959		
7-02281		QCDI									



MERCURY TEST SUMMARY				PROPULSION				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			ENGR	INSTL				START COMPL
7-02287-15 7-02287C 7-02297N B.H. Hadley Co. 10577-15	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Valve, Booster Fuel Shutoff, Power Operated				0th	(5/61)  Approved on the basis of similarity to vendor's P/N 10577 plus additional tests to procurement specification requirements. Valves differ only as noted on vendor drawing and VIR M7-3227, which included an improved actuator and addition of vendors name on nameplate.  CV/A design group approved 7-02287-15 unit as noted on VAF 18608 and VIR M7-3227, dated 4-7-59.	Completed April 1959
		QC DI						

MERCURY TEST SUMMARY				PROPULSION				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			APPR	ENGR				START/COMPL
7-02315-3 - - - 7-02315H Airesearch Mfg. Co. 121020-1	77D 88D 93D 100D 103D	Valve - Fill and Drain. Fuel				BOS	(5/61)  Approved on basis of similarity to the 121020 Airesearch valve. The -3 has a strengthened butterfly and shaft and a lubricated seal.  Proof of similarity submitted by vendor. Approved on VAF 24200, dated 9-20-60 by and VAF 46317, dated 9-20-60 by CV/A design group.	Completed July 1960
		QC DI						

7-02315

MERCURY TEST SUMMARY				PROPULSION				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	INITIALS	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED START/COMPL
			ENGR	INSTL				
7-02315-5		Valve - Fill and Drain, Fuel				BOS	(5/61)	Completed July 1960
7-02315H Airesearch Mfg. Co. 121020-2	107D 109D 113D 130D 144D 152D 167D						Approved based on similarity to the 7-02315-1 valve. Proof of similarity submitted by vendor. The -1 was pre-production tested and report 7A 1798-R-2 was approved.  CV/A design group approved valve on basis of similarity in VAF 24200, dated 7-20-60 and VAF 46317, dated 7-20-60.  The -5 has a strengthened butterfly and shaft to take full actuator torque and a lubricated seal for longer life. Improved microswitches and spotfacing on flanges were also added for general improvement.	
		QC DI						

MERCURY TEST SUMMARY										PROPULSION	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD			CRIT COMP	QUAL BY	REMARKS	TEST SCHED		
			ENGR	IDE	APPE				START	COMPL	
7-22232-805	77D	Line Assembly, Sustainer, Fuel					BOS	(6-61)  Approved on the basis of similarity to the 7-22232-1 and -3. The -1 was qualified by design evaluation tests conducted on one specimen by GD/A tests laboratory. The tests are recorded in report 7A1231 dated 31 July 1958.  The -805 has changes on the holes in the flanges, addition of a boss on one duct and slight dimensional changes on two elbows.	Completed Aug 1958		
- - - - -	88D										
- - - - -	93D										
GD/A	100D										
7-22232-805	103D										
	107D										
	109D										
	113D										
	130D										
	144D										
	152D										
	167D										
		QCBI									

7-22232



MERCURY TEST SUMMARY				PROPULSION				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		QUAL BY	REMARKS	TEST SCHED	
			APPR	ENGR			START	COMPL
7-23205-817	77D	Inlet Manifold,			PPT	(6-61)	Completed	June
- - - - -	88D	Booster Liquid				Approved on the basis of preproduction		1959
- - - - -	93D	Oxygen				tests conducted on 2 specimens by GD/A		
GD/A	100D					test laboratory. The tests are recorded		
7-23205-817	103D					in report 7A2085 dated 6-27-59.		
	107D							
	109D							
	113D							
	130D							
	144D							
	152D							
	167D							
		QCDI						

7-23205

MERCURY TEST SUMMARY				PROPULSION					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			ENGR	INSTL				START	COMPL
7-23419-801	77D	Inlet Manifold, Booster Fuel				BOS	(6-61)  Approved on the basis of similarity to the 7-23419-5, which was qualified by evaluation tests conducted on one specimen by GD/A test laboratory. The test was recorded in report 7B 1665-1 dated 8-15-59 and report 7B 1665-2 dated 9-12-59.	Completed Sept 1959	
- - - - -	88D								
- - - - -	93D								
- - - - -	100D								
GD/A	103D								
7-23419-801	107D								
	109D								
	113D								
	130D								
	144D								
	152D								
	167D								
		QC DI							

MERCURY TEST SUMMARY							PROPULSION					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR	CRT COMP	QUAL BY	REMARKS	TEST SCHED START COMPL					
27-23238-5 - - - GD/A 27-23238-5	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Sustainer LOX Line Assembly			PPT	(5/61)  Qualified by preproduction tests conducted on 2 specimens by GD/A test laboratory.  The combined preproduction and evaluation test was recorded in Report 27A472, dated 2-13-61.	Completed Feb. 1961					

QC DI

27-23238



MERCURY TEST SUMMARY				PROPULSION			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR	CRIT COMP	QUAL BY	REMARKS	TEST SCHED
						START	COMPL
27-02102-829	77D	Valve Assembly, Fill			0th	(6-61) Approved on the basis of similarity to 27-02102-827 which was preproduction tested and used on D series missiles.	Completed Dec. 1960
- - - - -	88D	and Drain, LO <sub>2</sub>				In addition, supplemental qualification tests were conducted on two 27-02102-829 units (serial numbers A and B) by Airesearch. The -829 valve is similar to the -827 valve except a sealed metal box completely encloses the actuator; the electrical leads are potted; the actuator is rotated 180°; and the housing is cast.	
27-02102K	93D					Airesearch Test Report AE-7456-R covers the tests on the -829 valve and Test Report AE-7531-R covers the earlier test on the -827 part.	
Airesearch Mfg. Co.	100D					CV/A Design Group approved the valve on VAF 52217, dated 12-12-60.	
121072-1	103D					Deviations from 7-00209B are as follows:	
	107D					1. Temperature, altitude and humidity.	
	109D					2. Pressure reduced from 30 inches Hg. to 20.58 inches Hg. rather than 1 mm. Hg.	
	113D					3. Four hour test at +40°F deleted.	
	130D					Tests added:	
	144D					1. Pressure Drop and Dynamic Flutter.	
	152D					2. Proof Pressure.	
	167D					3. Flush and Purge System Test.	
						4. Airborne Valve Actuator Test.	
						5. Ground Support Valve Test.	
		QC DI				(Continued on next page)	

MERCURY TEST SUMMARY				PROPULSION			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR ENGR IDR INSTL	CRIT COMP	QUAL BY	REMARKS	TEST SCHED
							START
27-02102-829 (Continued)						(Continued) Tests Added: 6. Burst Pressure Test 7. Low Temperature with LN <sub>2</sub> test. 8. Storage Test. 9. Deflection Load Test.	Completed Dec. 1960
27-02102		QCDI					

MERCURY TEST SUMMARY				PROPULSION			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	ACTIVITY	NOMENCLATURE	MAD		QUAL BY	REMARKS	TEST SCHED START COMPL
			APPR	ENGR			
27-02248-1	77D	Valve-Booster,			PPT	(5/61)	Completed March 1961
- - - -	88D	Disconnect, L02				Qualified by preproduction tests conducted on 2 units, serial numbers 1 and 2, by Reaction Motors Inc. The preproduction test was recorded in Test Reports CMP 102, and appendices A, B, and C, and Test Report 1221-1.	
- - - -	93D	(Forward Section)				CV/A design group approved PPT on 3-1-61. Tests performed deviated from book specification 27-02248D T-A-H requirements, paragraph 4.4.2.	
Reaction Motors	100D					(8-61)	
Inc.	103D					Test deviation was approved by VAF53587, dated 8-5-60.	
310722	107D						
	109D						
	113D						
	130D						
	144D						
	152D						
	167D						
		QC DI					

MERCURY TEST SUMMARY			PROPULSION						
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			ENGR	IDE				INSTL	START
27-02248-3	77D	Valve-Booster,				PPT	(5/61)		
- - -	88D	Disconnect, L02					Qualified by preproduction tests conducted on 2 units, serial numbers 1 and 2, by Reaction Motors Inc. The preproduction test was recorded in Test Reports CMP 102 (appendices A, B, and C) and Test Report 1221-1.		
27-02248D	93D	(Aft Section)							
Reaction Motors Inc.	100D						CV/A design group approved the preproduction tests on 3-1-61.		
310723	103D								
	107D						Tests performed deviated from book specification 27-02248D T-A-H requirements, paragraph 4.4.2.		
	109D						(8-61)		
	113D						Test deviation was authorized by VAF53588 dated 8-5-60.		
	130D								
	144D								
	152D								
	167D								
27-02248		QCDI							

[illegible]

**MERCURY**

**MAJOR CRITICAL COMPONENTS**

**PROPELLANT UTILIZATION**

None of the items in the propellant utilization system require further approval action prior to flight.

The liquid oxygen transducer assemblies are part of the propellant loading system and replace assemblies used on early D series missiles. No further approval action prior to flight is necessary for the liquid oxygen transducer assemblies.

MERCURY TEST SUMMARY										PROPELLANT UTILIZATION		
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD			CRIT COMP	QUAL BY	REMARKS	TEST SCHED			
			APPR	ENGR	INSTL				START	COMPL		
7-43011-817	77D	Manometer Assembly, Fuel					BOS	(10-61)	Completed	Dec 1959		
- - - - -	88D											
27-04001	93D											
GD /A	100D											
- - - - -	103D											
	107D											
	109D											
	113D											
	130D											
	144D											
	152D											
	167D											

MERCURY TEST SUMMARY			PROPELLANT UTILIZATION					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		QUAL BY	REMARKS	TEST SCHED	
			APPR	INSTL			START	COMPL
7-43012-819 27-04001 GD/A - - - -	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Manometer Assembly, Lox			BOS	( 10-61)  The 7-43012-504 was preproduction tested to 7-00209B requirements in accordance with test report 7B 2313-2, dated 12-2-59 and flight proof tested to 7-00210B requirements in accordance with test report 7B 2217-2, dated 8-11-59. The 7-43012-504 unit used a new housing assembly and was a reworked 7-43012-803 unit or essentially a -811 unit.  Changes resulting in the -819 unit consisted of a mandrel connection to a "banana" plug and the use of PT201 acrylic resin coating inside the manometer housing.  The 7-43012-819 unit has a successful flight history.	Completed Dec. 1959	
7-43012		QCDI						



MERCURY TEST SUMMARY				PROPELLANT UTILIZATION					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD			QUAL BY	REMARKS	TEST SCHED	
			APPR	INSTL	CRIT COMP			START	COMPL
7-43040-819 - - - - - 27-04001 GD/A - - - - -	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Computer Comparator				BOS	(10-61)  The 7-43040-801 was flight proof tested to 7-00210B requirements in accordance with test report 7B1699, dated 5-19-58. The -801 unit was tested to -4°F low temperature rather than -65°F (deviation referenced in test report 7B1699).  Changes in the -801 assembly resulting in the -819 assembly consisted of a new potting compound to permit unit storage at -65°F instead of -4°F. Other changes consisted mainly of resistor changes to stabilize gains and adjust operating ranges, changes to accommodate APChE, and change of vendors on some components to effect greater reliability.  The 7-43040-819 unit has a successful flight history.	Complete	
		QCDI							



MERCURY TEST SUMMARY			PROPELLANT UTILIZATION					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			ENGR	INSTL				START COMPL
27-04240-811 27-04240-E 27-04239 C GD/A 113-811100-1	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Transducer Assembly - Liquid Oxygen				OTH	(11-61)  This unit is similar (structurally modified) to the -801 assembly, which was pre-production tested, test report 27A126, but failed shock and vibration tests. The -811 unit was qualified by similarity to the -801 unit plus proof cycle, shock, vibration, and life tests, test report (27A1136).	Complete
		QCDI						

MERCURY  
MAJOR CRITICAL COMPONENTS  
ELECTRICAL

The electrical system is composed of batteries, inverters, power changeover switch, distribution harnesses, and miscellaneous switches, relays, and connectors.

All items have been preproduction, flight proof tested, and/or approved on the basis of similarities, with exception of the harnesses and abort sensing relay.

The harnesses are fabricated to MIL-W-8160 specification requirements.

Flight proof testing on the abort sensing relay 27-61147-805 is complete and report is being prepared.

In some instances, where items have not conformed to MIL-I-6181B and MIL-I-26600 test requirements, deviation requests have been processed and submitted for AFBSD approval.

The noise generated by action of the thermostatic heater switches used in the missileborne batteries exceeds the limits (conducted interference, and radiated interference) of MIL-I-6181B and MIL-I-26600 test requirements. The battery heaters and the thermostatic heater switches are nonoperative during flight. During countdown operation the heaters cycle on and off at intervals of about 10 to 15 minutes; the excessive noise exists for less than one second, when switches open and close.

MERCURY TEST SUMMARY				ELECTRICAL				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			REMARKS	TEST SCHED	
			ENGR	IDE	INSTL		START	COMPL
7-06344-9	77D	Staging Plug,				(5/61) Approved based on similarity to 7-06344-1 (200X-30-3) plug which was preproduction tested.  Design group approved the unit on VAF MC 7-06344-9-LA-001, dated 1-19-61.	Completed March 1961	
7-06344	88D	Propulsion, Electri-						
- - - -	93D	cal						
Amphenol Corp.	100D							
200X30-5205	107D							
	109D							
	113D							
	130D							
	144D							
	152D							
	167D							
	103D							
		QCDI						

MERCURY TEST SUMMARY				ELECTRICAL				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			ENGR	INSTL				START COMPL
7-06345-5 7-06345 - - - Amphenol Corp. 200X-30-5004	77D 88D 93D 100D 107D 109D 113D 130D 144D 152D 167D 103D	Staging Receptacle, Propulsion				BOS	(5/61)  The staging receptacle was approved based on similarity to 7-06345-3 (200X-30-4) receptacle which was preproduction tested.  Design group approved the unit on VAF MC 7-06345-5-LA-001 dated 1-19-61.	Completed Jan. 1961
7-06345								



MERCURY TEST SUMMARY				ELECTRICAL					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR	ENG IDF INSTL	CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
								START	COMPL
7-06380-3		Battery, RSC				BOS	(5-61)	Completed	Jan 1959
- - - - -	77D						Approved based on similarity to 7-06380-1 which has been flight proof tested at GD/A. (Test Report 7A1607-R, dated 1-30-59).		
7-03236	88D						NOTE: Two specimens were tested. First specimen, serial number 9, failed; second specimen, serial number 13, passed flight proof test requirements.		
Yardney Corp	93D						Deviation request, ECP-CAC-107A-334-80R2 has been submitted to waive some test requirements of MIL-I-26860.		
5500	100D								
	103D								
	107D								
	109D								
	113D								
	130D								
	144D								
	152D								
	167D								
		QC DI							
7-06380							* Battery voltage dropped below minimum requirements (22vdc) after 6 minutes of discharging at the rate of 2.0 amperes. Present specification requirements calls for discharging at the rate of 1.25 amperes.		



MERCURY TEST SUMMARY				ELECTRICAL					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			ENGR	INSTL				START	COMPL
27-06106-801	77D	Switch Assy, Power				0th	(5/61)	Completed	Oct. 1960
- - -	88D	Changeover				BOS	Design group approved item based on similarity to vendor P/N 963-1B (GD/A P/N 27-06177-1) which has been preproduction tested by vendor, ER 1640 dated 5-3-60. Flight proof tested by GD/A, Test Report 27A-801R, dated 10-21-60.		
27-06113-3	93D					&			
United Control	100D					FPT			
1277-1A	103D								
	107D								
	109D								
	113D								
	130D								
	144D								
	152D								
	167D								
							(12-61)		
							NOTE		
							See note under Kinetic switch 27-06106-801.		

MERCURY TEST SUMMARY					ELECTRICAL			TEST SCHED	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		CRIT COMP	QUAL BY	REMARKS	START	COMPL
			APPR	ENGR					
27-06106-801	77D	Switch Assembly,				PPT	(5-61)	(Completed	March
- - - - -	88D	Power Changeover					Two specimens preproduction tested at		1959
27-06113-3	93D						GD/A (Test Report 7A1871R, dated 3-19-59).		
Kinetic	100D						First specimen has been subjected to		
M-160-4	103D						temperature, altitude, humidity, vibra-		
	107D						tion, acceleration and life tests.		
	109D						Second specimen has been subjected to RF,		
	113D						fungus resistance, sand and dust and salt		
	130D						atmosphere tests.		
	144D						(12-61)		
	152D						NOTE		
	167D						In accordance with design group request		
							only Kinetic switch is to be used on		
							Mercury missiles.		
27-06106		QCDI							

MERCURY TEST SUMMARY					ELECTRICAL			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			ENGR	INSTL				START COMPL
27-06348-1	77D	TLM Battery,				FPT	(5-61) Flight proof tested by vendor. Test Report MAR 4073 dated April 1961. Missile Electrical Design Group has approved article LA-004, dated 5-8-61 for flight proof testing only.	Completed April 1961
- - - - - 27-06348 Eagle Picher MAR 4073	93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Lightweight					NOTE  Deviation request, ECP-CAC-107A-334-80R2, dated 5-3-61 has been submitted to waive some of the test requirements of MIL-I-26600.	
		QCDI						

MERCURY TEST SUMMARY				ELECTRICAL				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			QUAL BY	REMARKS	TEST SCHED
			ENGR	IDR	INSTL			START COMPL
27-06358-1	88D	Battery, TLM				FPT	(5-61) Electrical Design Group states that the specimen has been flight proof tested and test report has been reviewed and approved. NOTE: A deviation request ECP-CAC-107A-334-MOR2 has been submitted to waive some of the test requirements of MIL-I-6181.	See Remarks
- - - - - 27-06358 Eagle Picher Co. CAP-4067								

27-06358

MERCURY TEST SUMMARY					ELECTRICAL				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			QUAL BY	REMARKS	TEST SCHED	
			ENGR	IDE	INSTL			START	COMPL
27-06358-1 - - - - 27-06358 Yardney Corp. 1756	88D	Battery, TLM				FPT	(5-61) Seven specimens have been flight proof tested at GD/A. (Test Report number 7A42285, dated 7-27-59).  NOTE: Battery is remotely activated. Seven batteries were required to accomplish the test.  Deviation request, ECP CAC-107A-334-80R2. has been submitted to AFBMD to waive some test requirements of MIL-I-6181.	Completed July 1959	



MERCURY TEST SUMMARY					ELECTRICAL				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			APPB	ENGR				START	COMPL
27-06359-3 - - - - 27-06359 Yardney 1734		Battery Pack, Main Missile Power				PPT	(5-61) Preproduction tested by Associated Test Laboratory. Results reported in D432- 1237, dated 10-5-59.  Deviation request, ECP CAC-107A-334-80R2 has been submitted to waive some of the test requirements of MIL-I-6181.  <u>NOTE</u> TWX-BSBKK-17-7-45, dated 17 July 1961 from BSD to C. W. Blakey, deletes Yardney as a source for the main missile battery when it is used as flight article.	Complete	

MERCURY TEST SUMMARY

ELECTRICAL

PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	TEST SCHEDULE
					START COMPL
27-61147-805		77D Relay Installation -	FPT	(12-61)	Complete (See Remarks)
- - - -		88D Abort Sensing		Consists of the following commercial parts:	
GD/A		93D		Relay 97-37002-006	
27-61147		100D		Diode 87-19000-006	
		103D		Receptacle 81-55900-818	
		107D			
		109D			
		113D			
		130D			
		144D			
		152D			
		167D			
				Flight proof testing is complete, and formal re- port is being prepared.	
				<u>NOTE</u>	
				Unit failed to conform to MIL-I-26600 test requirements.	
				Deviation request, ECP-CAC-107A-334-129 has been submitted to waive some of the test re- quirements of MIL-I-26600.	

QCDI



MERCURY TEST SUMMARY					ELECTRICAL				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			APPR	ENGR				START	COMPL
27-61147-803	77D	Relay Installation, Abort Sensing				BOS	To be approved based on similarity to 27-61147-805 assembly which is being flight proof tested.	Not Required	
	88D								
	93D								
	100D								
	103D								
	107D								
	109D								
	113D								
	130D								
	144D								
152D									
167D									

MERCURY  
MAJOR CRITICAL COMPONENTS  
TELEMETRY

There are six items in this section. Five were approved based on similarity to previously qualified items. One item, the lightweight TLM package for 100D, was flight proof tested and approved.

A deviation, ECP CAC-107A-334-98, has been approved for all 27-12290 assemblies.

MERCURY TEST SUMMARY				TELEMETRY					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			ENGR	INSTL				START	COMPL
27-111541-866 - - - - 7-01658 Bendix - - - -	88D	TLM Package				BUS	(5-61) Approved based on similarity to -1 which has been flight proof tested plus additional life test with modified commutator motor installed. Partially meets MIL-1-6181 test requirements. Similarity approved by Design Group.	Completed	

MERCURY TEST SUMMARY				TELEMETRY				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			ENGR	APPR				START COMPL
27-11616-829 - - - - - 27-01216 GD/A 27-11616-829	88D	TLM, Accessory Package				BOS	(5-61) Approved based on similarity to 7-11310 which has been flight proof tested except for deviation from -65°F storage temperature.  Partially meets MIL-1-6181 test requirements.  Similarity approved by Design Group.	Completed

27-11616

MERCURY TEST SUMMARY					TELEMETRY		
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR	CRIT COMP	QUAL BY	REMARKS	TEST SCHED
							START
27-12210-809 - - - - 27-01214 Bendix - - - -	100D	TLM Package, RF #2			BOS	(5-61) Approved based on similarity (change in the oscillator and lowered RF power output) to 27-11541 which has been flight proof tested.  Partially meets MIL-I-6181 test requirements.  Similarity approved by Design Group.	Completed

MERCURY TEST SUMMARY					TELEMETRY				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			APPE	ENGR				START	COMPL
27-12290-3	100D	TLM Package, Light Weight				FPT	(10-61) Consists of a transmitter built by Texas Instruments and a signal conditioner built by GD/A. Both have been separately flight proof tested to 7-00210B except for a low temperature test requirement of -30°F, and a non-operating test at 0°F.		Complete
- - - - - 27-01214 GD/A 27-12290-3							(10-61) The signal conditioner exceeded the limits of conducted interference and audio frequency conducted susceptibility per MIL-1-26600. A deviation request, ECP CAC-107A-534-98 (CCN 1302 for -4 contract; CCN 663 for -299 contract; CCN 74 for -635 contract; CCN 58 for -699 contract), has been approved for all 27-12290 assemblies.  Testing has been completed and the report has been reviewed and approved.		

MERCURY TEST SUMMARY				TELEMETRY						
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR	ENGR	IDF	INSTL	CRIT COMP	QUAL BY	REMARKS	TEST SCHED
										START
27-12290-803 - - - - 27-01214 GD/A 27-12290-803	93D	TLM Package, light weight						BOS	( 10-61)  Approved based on similarity to 27-12290-3, which was flight proof tested. (Refer to -3 remarks).  Similar to 27-12290-3 except for rework of transmitter and IIF filter to change frequency.	Complete

MERCURY TEST SUMMARY

TELEMETRY

PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	TEST SCHEDULE	START ' COMPL
27-12290-809	77D	TLM Package -	BOS	(10-61) (12-61)		Complete
- - - -	103D	Light Weight				
27-01214	107D			Approved based on similarity to 27-12290-3, which was flight proof tested. (Refer to -3 remarks)		
GD/A	130D					
27-12290-809	144D			Similar to 27-12290-3 except for rework of transmitter and RF filter to change frequency. The shockmounts were also changed from the spring-type to hard rubber.		
	152D					
	167D					
	109D					
	113D					



MERCURY

MAJOR CRITICAL COMPONENTS

RANGE SAFETY

This section covers a command set, arming device, destructor, three-second destruct delay unit and power and signal control unit.

All items have been preproduction tested, flight proof tested and/or approved on the basis of similarity to units that have been tested.

MERCURY TEST SUMMARY				RANGE SAFETY					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			ENGR	INSTL				START	COMPL
27-04306-3 27-04306A (27-04230F) Beckman and Whitley 175-9D-1	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	RSC, Destruct Unit				0th	(6-61)  Approved on basis of similarity to 7-04237 per Article LA 27694A, dated 5-7-59, and VAF MC 31,407, dated 5-8-59.  Additional tests consisting of shock, operating vibration and operating acceleration have been performed at GD/A as reported in Test Report 7A1822.  NOTE:  Deviation request, ECP-CAC 107A-334-36 has been submitted to waive some of the test requirements of MIL-I-26600.  The deviation request has been approved only for Contract AF 04(647)-299 by CCN 253, MSN 61, BMC-61.		Completed
		QC DI							

MERCURY TEST SUMMARY				RANGE SAFETY					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			QUAL BY	REMARKS	TEST SCHED	
			ENGR	IDE	INSTL			START	COMPL
27-36014-1	77D	Command Set,				FPT	(5-61)	Completed	
- - - - -	88D	Range Safety					Limited flight proof tested. Modified module in audio section of GFE P/N 319600, MARK I has only been vibration tested. Modification decreases gain by a factor of three (3) and increases linearity.		
(7-03241)	93D								
GD/A	100D								
27-36014-1	103D								
	107D								
	109D								
	113D								
	130D								
	144D								
	152D								
	167D								
							Testing approved by Design Groups.		
		QC DI							

27-36014

MERCURY TEST SUMMARY				RANGE SAFETY			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			TEST SCHED	
			ENGR	INSTR	CRIT COMP		
27-36244-1	77D	Arming Device, RSC				Complete  (5-61) One specimen has been preproduction tested at GD/A as reported in Test Report No. 7A2055, dated 6-8-59. Test report has been reviewed and approved by cognizant engineers. Deviation request, ECP - CAC-107A-334-153, has been submitted to waive the test requirements of M11-1-26600.  <u>NOTE</u> (a) Facility equipment could not attain operating altitude of 1.0 mm of Hg. Altitude attained was 1.5 mm of Hg. (b) Shipping vibration omitted because of lack of shipping container. (c) Toggle switches replaced by single-pole knife switches.	
- - - - -	88D						
(27-03008-5)	93D						
GD A	100D						
27-36244-1	103D						
	107D						
	109D						
	113D						
	130D						
	144D						
	152D						
	167D						

MERCURY TEST SUMMARY										RANGE SAFETY	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD			CRIT COMP	QUAL BY	REMARKS	TEST SCHED		
			ENGR	IDE	INSTL				START	COMPL	
27-36236-801	77D	Control Unit, Power and Signal					PPT	(5-61)  One specimen has been flight proof tested at GD/A as reported in Test Report number 27A-2431 dated 10-20-59. Test report has been reviewed and approved by cognizant engineer.	Completed		
- - - - -	88D										
- - - - -	93D										
GD/A	100D										
27-36236-801	103D										
	107D										
	109D										
	113D										
	130D										
	144D										
	152D										
	167D										
27-36236		QC DI									

RANGE SAFETY										
MERCURY TEST SUMMARY										
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			ENGR	TEST	INSTL				START	COMPL
27-36277-1	77D	Delay Unit, Three-Second Destruct						(8-61) Unit underwent search for critical weakness test. All tests have been performed including RF tests. Test results are being evaluated. This unit supercedes 27-36256-3, which was used on 100D missile.  (12-61) Deviation request, ECP-107A-334-127 has been submitted to waive some of the radiated and conducted test requirements of MIL-I-26600.  Report has been reviewed and approved.	Complete	
- - - - -	88D									
(27-01175)	93D									
GD/A	103D									
27-36277-1	107D									
	109D									
	113D									
	130D									
	144D									
	152D									
	167D									
27-36277		QCDI								

## MERCURY

### MAJOR CRITICAL COMPONENTS

#### AZUSA

All transponders have been delivered to AFMTC by General Dynamics/Astronautics. The transponders are now GFE items and GD/A has no control of the various configurations.

Two specimens of the basic unit, 26-10002-1, were flight proof tested. One unit was subjected to temperature, altitude, humidity, vibration, acceleration, and shock tests. The other unit was subjected to life and RF tests. Phase-lock and klystron failures were encountered but were corrected, and the test requirements were met. The various dash number configurations consist of modifications of the crystal filter characteristics, and the units are approved based on similarity to the basic unit.

MERCURY TEST SUMMARY										AZUSA	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD			CRIT COMP	QUAL BY	REMARKS	TEST SCHED		
			APPR	ENGR	INSTL				START	COMPL	
26-10002-1 thru -815 AZD 26-001 (Component Spec.) GD A 26-10002-1 thru -815	*	Transponder, B-Coherent					BOS	(5-61) * GD/A has delivered all transponders to AFMTC thus they became GFE items. GD/A has no control of dash numbers assigned for specific Mercury missiles. All dash numbers through -815 are approved on the basis of similarity to -1 which has been flight proof tested. (See Test Report 7A1766R, dated 12-17-58 and AZN-26-050, dated 9-10-58) The major change among various dash numbers is the use of a crystal filter.  Two specimens have been tested.  S/N 189 has been subjected to temperature, altitude, humidity, vibration, acceleration, and shock tests. S/N 174 has been subjected to RF and life tests.  <u>NOTE</u>  Specimens failed to meet phase lock parameter requirements during temperature (+120°F), vibration, acceleration, and life tests. The klystron failed during the acceleration test. Specimens were readjusted or repaired and testing was repeated until it passed the test requirements.			



MERCURY  
MAJOR CRITICAL COMPONENTS  
ABORT SENSING AND IMPLEMENTATION

None of the abort sensing and implementation system components require further action or approval.

MERCURY TEST SUMMARY										ABORT SENSING AND IMPLEMENTATION	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N		EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	START COMPL	
				ENG	IDE	INSTL					
27-11111-825		100D	Abort Sensing and Control Unit					(10-61)	Completed April 1961		
- - - - -								This unit was flight proof tested to the requirements of 7-00210B by the GD/A test labs per test request number 27A1271. The following tests were performed:			
27-00210B								1. Temperature-Altitude-Humidity			
GD/A								a. Temperature extremes; -65°F, +160°F.			
27-11111-825								b. Altitude extreme; 1 mm Hg			
								c. Humidity; 95%			
								2. Vibration			
								a. 8g maximum			
								3. Acceleration			
								a. +10g, -2g; longitudinal axis			
								b. ±5g, mutually perpendicular axes.			

MERCURY TEST SUMMARY										ABORT SENSING AND IMPLEMENTATION			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N		EFFECTIVITY	NOMENCLATURE	MAD APPR			CRIT COMP	QUAL BY	REMARKS	TEST SCHED			
				ENGR	IDE	INSTL				START	COMPL		
27-11111-831	880	Abort Sensing and Control Unit					BOS	(5/61)	Approved based on similarity to the -825 unit. The changes on the -825 unit resulting in a -831 unit consist of the addition of suppression diodes across the relay coils, harness routing controls, and mounting change eliminating a mechanical interference. Two specimens of this unit are being subjected to reliability testing.	Completed	April 1961		
- - - - -													
GD A													

27-11111

MERCURY TEST SUMMARY				ABORT SENSING AND IMPLEMENTATION				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			QUAL BY	REMARKS	TEST SCHED
			ENGR	IDE	INSTL			START COMPL
27-111111-835 - - - - 7-00210B GD/A 27-111111-835	77D 93D 103D 107D 109D 113D 130D 144D 152D 167D	Abort Sensing and Control Unit				BOS	(10-61)  Approved based on similarity to the -825 unit. The changes on the -831 unit resulting in the -833 unit consist only in the use of "blue dot" transformers and decreasing the length of the magnetic amplifier mounting studs.  The changes to -833 for the -835 consist of using fiber washers for motor mountings, replacing two diodes with resistors, and changing two resistance values in the magnetic amplifier null voltage suppression circuit. The circuit changes prohibit high null voltage output which would prevent drop-out of the capsule fail detection relays in case of an abort.  The unit did not meet MIL-I-26600 requirements. A deviation request, ECP CAC-107A-344-102 (CCN 1336 for -4 contract; CCN 722 for -299 contract; CCN 86 for -635 contract; CCN 71 for -699 contract), was approved for all 27-11111 assemblies.	Completed April 1961
		QCDI						



MERCURY TEST SUMMARY				ABORT SENSING AND IMPLEMENTATION						
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			ENGR	IDE	INSTL				START	COMPL
87-44900-357	77D	Switch, Pressure,					0th	(5-61)	Completed	Sept.
- - - - -	88D	Booster Fuel Injection						This item is a modified commercial part.		1960
- - - - -	93D	Manifold (470 psid)						Twelve units were evaluation tested at		
Bourns Labora-	100D							G/A per 27A419, dated 9-1-60. The fol-		
tories	107D							lowing tests were performed:		
71731-0-4.7-000	109D							Temperature (-65°F, 2 hrs)		
	113D							(+165°F, 2 hrs)		
	130D							Vibration (.25 in., 10 to 25 cps)		
	144D							(14 to 35G's, 25 to 2000 cps)		
	152D							Acceleration (10G's, all axes)		
	167D									
	103D									
		QC DI								

MERCURY TEST SUMMARY				ABORT SENSING AND IMPLEMENTATION					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			ENGR	INSTL				START	COMPL
87-44900-358	77D	Switch, Pressure,				0th	(5-61)	Completed	Scheduled
- - - - -	88D	Sustainer Fuel					This item is a modified commercial part.	Sept.	1960
- - - - -	93D	Injection Manifold					All six units successfully passed evaluation tests performed at GD/A per 27A419, dated 9-1-60. The following tests were performed:		
Bourne Laboratories	100D	(560 psia)					Temperature (-65°F, 2 hrs)		
71732-0-5.6-000	103D						(+165°F, 2 hrs)		
	107D						(.25 in., 10 to 25 cps)		
	109D						(16 to 35G's, 25 to 2000 cps)		
	113D						Acceleration (10G's, all axes)		
	130D								
	144D								
	152D								
	167D								
		QC DI							

87-44900-358





MERCURY TEST SUMMARY				ABORT SENSING AND IMPLEMENTATION					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			QUAL BY	REMARKS	TEST SCHED	
			ENG	IDE	INSTL			START	COMPL
87-44900-372	88D 100D	Switch, Pressure, 10 <sub>2</sub> Tank Ullage (21.5 psid)				0th	(10-61) This item is a modified commercial part. Six units were evaluation tested at GD A per 27A419, dated 9-1-60. The following tests were performed: Temperature (-65°F, 2 hrs) (+165°F, 2 hrs) Vibration (.25 in., 10 to 18 cps) (8G's, 18 to 2000 cps) Acceleration (10G's, all axes)	Completed Sept. 1960	
- - - - Bourns labora- tories 50954-0-21.5-000							NOTE  Two of the six units failed in test. One unit had a contact failure at -65°F. After repair, the unit de- veloped heavy wiper lift-off around the switching point during X axis vibration.  The other unit developed heavy wiper lift-off during Z axis vibration. The unit was repaired and retested and no malfunctions occurred.  This unit replaced by 87-44900-356.		
87-44900-372		QC DI							

MERCURY TEST SUMMARY				ABORT SENSING AND IMPLEMENTATION					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			ENGR	INSTL				START	COMPL
87-44900-374 - - - - - - - - Bourns Labora- tories 50936-0-11-000	88D 100D	Switch, Pressure, Booster Cut-off, L0 <sup>2</sup> Tank (11.0 psid)				0th	(10-61) This item is a modified commercial part. All three units successfully passed evaluation tests performed at GD/A per 27A419, dated 9-1-60. The following tests were performed: Temperature (-65°F, 2 hrs) (+165°F, 2 hrs) Vibration (.25 in., 10 to 18 cps) (8G's, 18 to 2000 cps) Acceleration (10G's, all axes)  This unit replaced by 87-44900-355 for the remaining effectivities.	Completed Sept. 1960	
		9CDI							

MERCURY TEST SUMMARY										ABORT SENSING AND IMPLEMENTATION					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N		EFFECTIVITY		NOMENCLATURE		MAD APPR		CRIT COMP		QUAL BY		REMARKS		TEST SCHED	
						ENGR		INSTL						START COMPL	
87-44900-496		77D		Switch, Pressure, Pro-						BOS		(5-61)		Completed	
- - - - -		88D		pellant Differential								This item is a modified commercial part.		Sept.	
- - - - -		93D		(2.5 psid)								It is approved based on similarity to the		1960	
Servonic Instru-		100D										-354 (P-20-1) unit except for a pressure			
ments		103D										setting of 2.5 psid instead of 4.0 psid.			
P-20-4		107D										All six -354 units passed evaluation tests			
		109D										performed at GD/A per 27A419, dated			
		113D										9-1-60. The following tests were per-			
		130D										formed:			
		144D										Temperature (-65° F, 2 hrs)			
		152D										( +165° F, 2 hrs)			
		167D										(.25 in., 10 to 18 cps)			
												Vibration (8G's, 18 to 2000 cps)			
												Acceleration (10 G's, all axes)			
87-44900-496				QC DI											

MERCURY TEST SUMMARY				ABORT SENSING AND IMPLEMENTATION				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPB		CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			ENGR	INSTL				START COMPL
87-14900-356 - - - - - - - - Servonic Instru- ments, Inc. P-20-3	93D	Switch, Pressure, 102 Tank Village (21.5 psid)				oth	( 10-61 )  This item is a modified commercial part. Six units were evaluation tested at GD/A per 27A419, dated 9-1-60. The following tests were performed: Temperature (-65°F, 2 hrs) (+165°F, 2 hrs)  Vibration (.25in., 10 to 18 cps) ( 8g, 18 to 2000 cps)  Acceleration(10g, all axes)  <u>NOTE</u>  Two of the six units failed in test. One unit exhibited intermittent high resist- ance and broke contact between 5 to 15 psi. The unit was repaired and retested but did not operate properly.  The second unit shifted to 28 psid at -65°F and remained at this point when back at ambient. The unit was repaired and then successfully tested.  Search for critical weakness tests have been completed. 1,000 hour life test was completed 9-29-61. Component was successfully open-loop tested on 88D.  This part replaces 87-44900-372, due to increased reliability level.	Complete Sept. 1961
		QC DI						

MERCURY TEST SUMMARY										ABORT SENSING AND IMPLEMENTATION									
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD			CRIT COMP	QUAL BY	REMARKS	TEST SCHED										
			ENGR	IDE	APPR				START	COMPL									
87-14900-555	77D	Switch, Pressure, Booster Cutoff, L02 Tank (11.0 psid)					oth	(10-61)  This item is a modified commercial part.  All three units successfully passed evaluation tests performed at GD/A per 27A419, dated 9-1-60. The following tests were performed: Temperature (-65°F, 2 hrs) (+165°F, 2 hrs)  Vibration (.25 in., 10 to 18 cps) (8g, 18 to 2000 cps)  Acceleration (10g, all axes)  Search for critical weakness test have been completed. 1,000 hour life test was completed 9-24-61. Component was successfully open-loop tested on 88D  This part replaces 87-44900-374 due to increased reliability level.	Complete Sept. 1961										
- - - - -	95D																		
- - - - -	103D																		
- - - - -	107D																		
Servonic Instru-	109D																		
ments, Inc.	113D																		
P-20-2	130D																		
	144D																		
	152D																		
	167D																		

MERCURY TEST SUMMARY

ABORT SENSING AND IMPLEMENTATION

EFFECTIVITY		QUALIFIED BY		NOMENCLATURE		REMARKS	TEST SCHEDULE	START COMPL
PART NUMBER	87-44900-584	77D	Switch, Pressure,	BOS	(12-61)	<p>Approved based on similarity to 87-44900-356. This switch is the same as, and replaces, the -556. The -854 is calibrated at 19.5 psid.</p> <p>The change was made when results of 93D were analyzed. It was found that LO<sub>2</sub> tank ullage pressure was approximately 22.5<sup>2</sup> psid a few seconds after launch. A one pound tolerance for an abort condition is not sufficient.</p>		Complete Dec. 1961
SPEC CONTROL	- - - - -	103D	LO <sub>2</sub> Tank Ullage					
PROC SPEC	- - - - -	107D	(19.5 psid)					
VENDOR NAME	Servonic	109D						
VENDOR P N	Instruments, Inc.	113D						
		130D						
		144D						
		152D						
		167D						

MERCURY  
MAJOR CRITICAL COMPONENTS  
AUTOPILOT

None of the items in the Autopilot section require further approval action prior to flight. FPT tests on the gyro rate and displacement group and the remote rate group have been completed and the preproduction test is in progress. These assemblies contain gyros with spin motor rotation detectors. Preproduction testing on the new displacement gyros is complete. Flight proof tests are complete on the new rate gyro ; the life test portion of the preproduction test is being rerun.

The alternate vendor for 27-04204-1, 27-04205-1, 27-04208-1, 27-04209-1 and 27-04211-1 have been eliminated as sources for these items; therefore, these items have been removed from this report.

MERCURY TEST SUMMARY				AUTOPILOT			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR ENGR INSTL	CRIT COMP	QUAL BY	REMARKS	TEST SCHED
							START COMPL
7-04250-1 7-04250 G - - - - Kearfott Corp. T2506-1A	100D	Gyroscope - Displacement			PPT	(5-61)  This unit was tested to 7-00209B requirements per GD/A report number 27A150 dated 3-12-60.	Completed May 1960

27-04250



MERCURY TEST SUMMARY				AUTOPILOT				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			ENGR	INSTL				START/COMPL
7-04250-3 7-04250G 27-04590 Kearfott Corp. C70250600	77D 93D 103D 107D 109D 113D 130D 144D 152D 167D	Displacement Gyro, Autopilot				PPT	(6-61)  This gyro contains spin motor rotation detectors. Testing was performed by GD/A on test number 27A955.  The flight proof testing and the preproduction testing are complete and the report is in the approval cycle.	Completed Dec. 1961
		QCDI						

MERCURY TEST SUMMARY				AUTOPILOT		TEST SCHEDULE
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	QUALIFIED BY	REMARKS	START	
7-04250-5 7-04250G 7-04265G Kearfott Corp T2506-2A	88D	Gyroscope - Displacement	BOS	(10-61) (12-61)  Approved based on similarity to 27-04250-1, which was preproduction tested.  The 27-04250-1 was tested to 7-00209B require- ments per GD/A test report Number 27A150.	Complete May 1960	

MERCURY TEST SUMMARY				AUTOPILOT				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD			REMARKS	TEST SCHED	
			ENGR	IDE	APPR		INSTL	START
27-04204-1	77D	Transducer-Feedback, Linear				(5-61) One 27-04204-1 unit was tested to Specification 27-04216F by Crescent Corp. and test results reported in Test Report 25-220, dated 12-58.  Autopilot design group approved the 27-04204-1 tests on VAF MC 25 668, dated 2-27-59.  (11-61) Eight specimens were subjected to search-for-critical-weakness tests and no failures were experienced. However, slight out-of-tolerance conditions were noted in all specimens.	Completed Feb. 1959	
27-04204E	88D							
27-04216F	93D							
Crescent Corp.	100D							
HC-65-P-4E	103D							
	107D							
	109D							
	113D							
	130D							
	144D							
	152D							
	167D							
		QC DI						

27-04204

MERCURY TEST SUMMARY				AUTOPILOT					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			QUAL BY	REMARKS	TEST SCHED	
			ENGR	IDE	INSTL			START	COMPL
27-04205-1	77D	Transducer-Feedback, Linear				BOS	(5-61) The 27-04205-1 unit (Crescent Corp.) was approved based on similarity to 7-04214 (HC44-4E) and 7-04215 (Crescent HC65-4E) and test report on 7-04242-1 (Crescent HC25-207) test report E-333.  The 27-04205-1 was electrically similar to 7-04214 and 7-04215 and mechanically similar to 7-04242-1.  Autopilot design group approved the 27-04205-1 based on similarity on VAF MC 17,120, dated 7-3-58.	Completed	July 1958
27-04205D	88D								
27-04213D	93D								
Crescent Corp.	100D								
HC-106-4E	103D								
	107D								
	109D								
	113D								
	130D								
	144D								
	152D								
	167D								
		QCDI							

27-04205

MERCURY TEST SUMMARY					AUTOPILOT			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			ENGR	INSTL				START COMPL
27-04206-1	77D	Valve-Flow, Limiter,				PPT	(5-61)	Completed Dec. 1958
27-04206C	88D	Hydraulic					One 27-04206-1 unit was tested to specification 27-04218A by Sterer Corp. and reported in test report 13000.	
27-04218D	93D						Autopilot design group approved the 27-04206-1 on VAF MC 22873, dated 12-1-58.	
Sterer	100D						(11-61)	
13000	103D						Specification was revised to D revision.	
	107D						The specification revisions require more severe fluid temperature and proof cycle tests.	
	109D						Ten specimens were subjected to search-for-critical-weakness tests and no failures were experienced. However, slight out-of-tolerance conditions were noted in all specimens.	
	113D						The fluid temperatures experienced during the third level of the search-for-critical-weakness tests are in excess of the revised (Revision D) requirements for the 27-04206-1 valve.	
	130D							
	144D							
	152D							
	167D							
		QC DI						



MERCURY TEST SUMMARY										AUTOPILOT	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			CRIT COMP	QUAL BY	REMARKS	TEST SCHED	START COMPL	
			ENGR	INSTL	TEST						
27-04209-1 27-04209D 27-04212H Cadillac Gage FC-26-397A	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 157D	Valve - Servo, Electro-Hydraulic					BOS	(5-61) The 27-04209-1 valve was approved on basis of similarity to 7-08353-3 which was pre-production tested.  The 7-08353-3 valve was tested by Cadillac and reported in test Number CG 6-19. Report was approved on VAF MC 21969, dated 11-13-58.  Autopilot design group approved the 27-04209-1 valve on VAF's MC 21971 and MC 21969, dated 11-1-58.  (11-61)  Specification was revised to H revision, which incorporates higher temperature requirements.  The 27-04209-1 servo valve has performed satisfactorily at temperatures in excess of the revised temperature requirements during search-for-critical-weakness tests.	Complete Nov. 1958		
		OC DI									





MERCURY TEST SUMMARY				AUTOPILOT			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		QUAL BY	REMARKS	TEST SCHED
			APPR	INSTL			START COMPL
27-04301-1 27-04301D 27-04313E Minnneapolis- Honeywell JBT 114	88D 100D	Rate Gyro, Autopilot			PPT	(6-61)  This unit replaces 27-41709. Testing by GD/A on Test number 27A906 is complete. The report was reviewed and approved, but has since been disapproved. This unit has been replaced by 27-04574-1 and no additional testing is planned.	See Remarks

27-04301

MERCURY TEST SUMMARY					AUTOPILOT			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	INITIALITY	NOMENCLATURE	MAD APPR INSTL IDR ENGR	CRIT COMP	QUAL BY	REMARKS	TEST SCHED	START COMPL
27-04574-3 27-04584B 27-04313E Boston Division Minneapolis- Honeywell JRS-10.	77D 93D 103D 107D 109D 113D 130D 144D 152D 167D	Rate Gyro, Autopilot			PPT	(6-61)  This gyro contains spin motor rotation detectors. Testing is to be performed by GD/A on test number 27A956 per specification 27-04313 "E". This unit replaces 27-04301-1.  The flight proof testing is complete. The life test portion of the preproduction test is being rerun.	See Remarks	
		QC DI						

MERCURY TEST SUMMARY										AUTOPILOT	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N		EFFECTIVITY	NOMENCLATURE	MAD APPR ENGR INSTL			CRIT COMP	QUAL BY	REMARKS	TEST SCHED START COMPL	
27-41000-841 - - - - - GD/A - - - - -		109D	Servo Amplifier - Filter					BOS	(12-61)  Approved based on similarity to the 27-41000-807 unit, which was flight proof tested on GD/A test number 7A2247, and the 27-41000-813 unit which was preproduction tested on GD/A test number 27A766, dated 9-28-60. Some deviations to MIL-I-26600 requirements were approved. Reference ECP No. CAC-107A-334-59 and CCN No. 532 and 206.) Differences between the units tested and the 27-41000-841 consist of gain and filter changes and incorporation of components with increased reliability.	Complete Sept. 1960	

MERCURY TEST SUMMARY				AUTOPILOT			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR ENGR INSTL	CRIT COMP	QUAL BY	REMARKS	TEST SCHED
							START COMPL
27-41000-843	77D	Servo Amplifier -			BOS	(12-61)	Complete Sept. 1960
- - - - -	103D	Filter				larity to the 27-4100C-807 unit, which ,	
- - - - -	107D					flight proof tested on GD/A test numbe	
GD/A	113D					7A2247, and the 27-41000-813 unit, which was	
- - - - -	130D					preproduction tested on GD/A test number	
	144D					27A766, dated 9-28-60. Some deviations to	
	152D					MIL-I-26600 requirements were approved.	
	167D					(Reference ECP No. CAC-107A-334-59 and	
						CCN No. 532 and 206.) Differences between	
						the units tested and the 27-41000-843	
						unit consist of gain and filter changes	
						and incorporation of components with in-	
						creased reliability.	



MERCURY TEST SUMMARY					AUTOPILOT			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			APPR	ENGR				START COMPL
27-41001-951	93D	Programmer- Electronic, Autopilot				POS	(6-61) Approved based on similarity to the 27-41001-837 unit, which was preproduction tested to 7-00209B requirements on 7A2248 dated 9-17-59. Some deviations to MIL-I-26600 requirements have been approved (Reference ECP. No: CAC-107A-334-47 and CCN-532.) Approximately 90% of the changes from the -837 unit to the -951 unit consist of programming changes. The remaining changes consist of incorporation of different components such as transistors, and the addition of transient suppression diodes.	Completed Sept 1959

27-41001

MERCURY TEST SUMMARY										AUTOPILOT	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N		EFFECTIVITY	NOMENCLATURE	MAD APPR			CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
				ENGR	IDE	INSTL				START COMPL	
27-41001-967		107D 109D 113D	Programmer - Electronic, Autopilot					BOS	(12-61) Approved based on similarity to the 27-41001-837 unit, which was preproduction tested to 7-00209B requirements on 7A2248 dated 9-17-59. Some deviations to MIL-I-26600 requirements were approved. (Reference ECP No. CAC-107A-334-47 and CCN 532.  Approximately 90% of the changes from the -837 unit to the -967 unit consist of programming changes. The remaining changes consist of incorporation of different components such as transistors and the addition of transient suppression diodes.	Complete Sept. 1959	

MERCURY TEST SUMMARY				AUTOPILOT				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			QUAL BY	REMARKS	TEST SCHED
			ENGR	IDE	INSTL			START COMPL
27-41001-969	71D 103D 130D 144D 152 D 167D	Programmer-Electronic-Autopilot				BOS	(12-61) Approved based on similarity to the 27-41001-837 unit, which was preproduction tested to 7-00209B requirements on 7A2248 dated 9-17-59. Some deviations to MIL-I-26600 requirements were approved. (Reference ECP No. CAC-107A-334-77 and CCN 532.)  Approximately 90% of the changes from the -837 unit to the -969 unit consist of programming changes. The remaining changes consist of incorporation of different components such as transistors and the addition of transient suppression diodes.	Complete Sept. 1959



MERCURY TEST SUMMARY				AUTOPILOT				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR ENGR IDR INSTL	CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
							START	COMPL
27-41002-859 - - - - - GD/A - - - - -	93D 109D	Gyroscope Group, Rate and Displacement			BOS	(10-61)  To be approved based on similarity to 27-45202-801, which will be preproduction tested for E series missiles. The assembly contains gyros with spin motor rotation detectors.  Testing on the 27-45202-801 is in process. Flight proof testing is complete, and preproduction testing is scheduled for February 1962 completion.  (1-62)  Differences between the 27-45202-801 and 27-41002-859 are due to different payload and trajectory characteristics.	19 Feb.	1962
		QC DI						

MERCURY TEST SUMMARY										AUTOPILOT	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD			QUAL BY	REMARKS	TEST SCHED			
			ENGR	IDE	APPR			START	COMPL		
27-41002-881	77D 103D 107D 113D 130D 144D 152D 167D	Gyroscope Group - Rate and Displacement				BOS	(12-61)  Approval to be based on similarity to 27-45202-801, which will be preproduction tested for E series missiles. The assembly contains gyros with spin motor rotation detectors.  Testing on the 27-45202-801 is in progress. Flight proof testing is complete, and pre-production testing is scheduled for February 1962 completion.  (1-62)  Differences between the 27-45202-801 and 27-41002-859 are due to different payload and trajectory characteristics. The -881 replaced the -859 because of wiring and gain changes. Ref. ECP 933.	In Prog.	Feb. 1962		



MERCURY TEST SUMMARY					AUTOPILOT				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			APPR	INSTL				START	COMPL
27-41331-5 - - - - - GD/A - - - - -	88D 100D	Gyroscope Group - Displacement, Autopilot				OTH	(5-61)  This assembly is not tested at this level, it is a part of the gyroscope groups 27-45302-1 and -803.  Special developed vendor components in this assembly, such as the gyros, are subject to test.	Not Required	
		QCDI							

# AUTOPILOT

PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			ENGR	IDE	INSTL				START	COMPL
27-41331-803 - - - - GD/A - - - -	77D 93D 103D 107D 109D 113D 130D 144D 152D 167D	Gyroscope Group - Displacement, Autopilot					0th	(10-61)  This assembly is not tested at this level, it is a part of the gyroscope group 27-41002-859.  Special developed vendor components in this assembly, such as the gyros, are subject to test.	Not Required	
		QC DI								

MERCURY TEST SUMMARY				AUTOPILOT			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR	ENGR INSTL CRIT COMP	QUAL BY	REMARKS	TEST SCHED
							START COMPL
27-41332-5 - - - - - - - - - - GD/A - - - - -	88D 100D	Gyroscope Group - Rate, Autopilot			OTH	(5-61)  This assembly is not tested at this level, it is a part of the gyroscope groups 27-45302-1 and -803.  Special developed vendor components in this assembly, such as the gyros, are subject to test.	Not Required

27-41332

MERCURY TEST SUMMARY					AUTOPILOT				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR	ENGR INSTL IDR	CRIT COMP	QUAL BY	REMARKS	TEST SCHED	START COMPL
27-41332-811 - - - - GD/A - - - -	77D 93D 103D 107D 109D 113D 130D 144D 152D 167D	Gyroscope Group - Rate, Autopilot				0th	(10-61) This assembly is not tested at this level it is a part of the gyroscope group 27-41002-859.  Special developed vendor components in this assembly, such as the gyros, are subject to test.	Not Required	
		QCDI							

MERCURY TEST SUMMARY				AUTOPILOT				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			APPR	ENGR				START COMPL
27-41333-5 - - - - - - - - - - GD/A - - - - -	100D	Power Supply Component - Amplifier, +30V., Gyro Group				OTH	(5-61)  This assembly is not tested at this level, it is a part of the gyroscope group 27-45302 -1.  Special developed vendors items in this assembly are subject to test.	Not Required
		QC DI						



MERCURY TEST SUMMARY										AUTOPILOT	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N		EFFICIENCY	NOMENCLATURE	MAD APPR ENGR INSTL			CRIT COMP	QUAL BY	REMARKS	TEST SCHED START COMPL	
27-41333-801 - - - - - - - - - - GD/A - - - - -		88D	Power Supply Component Amplifier, +30v, Gyro Group					0th	(10-61) This assembly is not tested at this level, it is a part of the gyroscope group 27- 45302 -803.  Special developed vendor items in this assembly are subject to test.	Not Required	

MERCURY TEST SUMMARY										AUTOPILOT	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			CRIT COMP	QUAL BY	REMARKS	TEST SCHED		
			ENGR	IDR	INSTL				START	COMPL	
27-41333-805	77D	Power Supply Component - Amplifier, + 30V., Gyro Group					OTH	(11-61)	Not Required		
- - - - -	93D							This assembly is not tested at this level, it is part of the gyroscope group, which was qualified by preproduction testing.			
- - - - -	103D										
GD/A	107D										
- - - - -	109D										
	113D										
	130D										
	144D										
	152D										
	167D										
		QC DI									

MERCURY TEST SUMMARY				AUTOPILLOT			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR ENGR INSTL	CRIT COMP	QUAL BY	REMARKS	TEST SCHED
							START COMPL
27-41703-5 - - - - - GD/A - - - - -	88D  100D	Control Group - Autopilot, Rate Gyro			BOS	(5-61)  Approved based on similarity to -3 assembly, which was preproduction tested on GD/A test number 7A2334, dated 5-21-60.	Completed May 1960

27-41703-5



MERCURY TEST SUMMARY				AUTOPILOT				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			ENGR	INSTL				START COMPL
27-45300-3 - - - - - GD/A - - - - -	100D	Servo Amplifier- Filter				BOS	(6-61)  Approved based on similarity to the 27-41000-807 unit which was flight proof tested on GD/A test number 7A2247, and the 27-41000-813 unit which was preproduction tested on test number 27A766 dated 9-28-60. Some deviations to MIL-I-26600 requirements were approved. (Reference ECP No. CAC-107A-334-59 and CCN-532.)  The 27-45300-3 unit differs from the tested units only in gain and filter changes.	Completed Sept 1960

27-45300-3



MERCURY TEST SUMMARY				AUTOPILOT			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			TEST SCHED	
			ENGR	IDR	INSTL		
			CRIT COMP			START COMPL	
			QUAL BY				
27-45301-3 - - - - - GD/A - - - - -	100D	Programmer - Electronic, Autopilot				Completed Sept 1959	
						(c-61)  Approved based on similarity to the 27-41001-837 unit, which was preproduction tested to 7-002098 requirements on GD/A test number 7A2248, dated 9-17-59. Some deviations to MIL-I-26600 requirements were approved. (Reference ECP No. CAC-107A-334-47.) Approximately 90% of the changes from the 27-41000-837 to the 27-45301-3 consist of programming changes. The remaining changes consist of incorporation of different components such as transistors and the addition of transient suppression diodes.	

27-45301-3





MERCURY TEST SUMMARY				AUTOPHLOT				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			APPR	INSTL				START COMPI
27-45302-803 - - - - - GD/A - - - - -	88D	Gyroscope Group- Rate and Displacement				BOS	(10-61)  Approved based on similarity to the 27-41002-805 assembly, which was preproduction tested to 7-00209B per test report TA2246, dated 6-7-60.  Approved deviations consist of storage at -40°F instead of -65°F, and operating acceleration test with spin motors disconnected.  Changes from the 27-41002-805 to the 27-45302-803 unit consist only of wiring and gain changes. The rate gyros are not used for control, but are used only for ASIS instrumentation. A remote rate gyro group has been added for control.	Complete

MERCURY

MAJOR CRITICAL COMPONENTS

SEPARATION

None of the items in the Separation System require further approval action prior to flight.

MERCURY TEST SUMMARY				SEPARATION					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			APPR	ENGR				START	COMPL
27-04304-3 27-04304A 27-04309A Conax Corpor- ation 2790A	77D 88D 93D 100D 103D 107D 109D 113D 130D 144D 152D 167D	Valve Assembly, Explosive				BOS	(6-61)  This item is similar to the -1 units which were tested to 7-00209B requirements by GD/A on 7-2245, dated 9-30-59. All 20 units tested met the requirements.  The change revising the -1 assembly to a -3 assembly consisted of the addition of an "O" ring retainer.	Completed Nov. 1959	
		QCDI							

MERCURY TEST SUMMARY				SEPARATION			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	<div> <div>ENG</div> <div>ID</div> <div>INSTL</div> </div> <div>APPR</div> <div>MAD</div>	CRIT COMP	QUAL BY	REMARKS	TEST SCHED
							START COMPL
27-08575-1		Flask, Separation				(5-61) Refer to Pneumatics Section,	

MERCURY TEST SUMMARY										SEPARATION	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD			CRIT COMP	QUAL BY	REMARKS	TEST SCHED		
			APPR	IDE	ENGR				START	COMPL	
7-45435-3	77D	Fitting Assembly, First Stage Separation					PPT	(5/61)	Complete	April 1959	
- - - - -	88D							Twenty units were subjected to require- ments of 7-00209B by CV/A in 7A1812 dated 4-10-59. As a result of corro- sion, four untreated and unlubricated fittings failed to operate after the enviromental tests. Two untreated but lubricated fittings operated even though corroded. The remaining units were treated with several different materials. Although some corrosion was present, all the units operated satisfactorily.			
27-04200	93D										
GD/A	100D										
- - - - -	103D										
	107D										
	109D										
	113D										
	130D										
	144D										
	152D										
	167D										
								All production units are now being manufactured with a finish which pre- vents corrosion.			

## MERCURY

### MAJOR CRITICAL COMPONENTS

#### ANTENNA

This section covers TLM/RSC, AZUSA, MOD III guidance antenna assemblies, TLM/RSC ring couplers and MOD III guidance wave guides.

Antennas and ring couplers have been tested and/or approved on the basis of similarity to qualified items.

AZUSA antenna is qualified on the basis of similarity to an antenna which was flight proof tested.

Standard VSWR measurement tests were performed on waveguide assemblies.

MERCURY TEST SUMMARY					ANTENNA				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
			ENGR	IDF				START	COMPL
7-11500-3 - - - - (7-01203) GD/A 7-11500-3	100D	Ring Coupler, TLM				BOS	(6-61) Approved on the basis of similarity to 7-36044-1 which has been preproduction tested (Test Report 7A561, dated 6-3-57). RSC ring coupler has HN connectors and TLM ring coupler uses TN connectors.	Completed June 1957	





MERCURY TEST SUMMARY										ANTENNA	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N		EFFECTIVITY	NOMENCLATURE	MAD APPR			CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
				ENGR	IDE	INSTL				START	COMPL
7-36044-5		109D	Ring Coupler, RSC					PPT	(10-61)	Completed	
- - - - -		113D									
7-01203		130D									
GD/A		144D									
7-36044-5		152D									
		167D									



MERCURY TEST SUMMARY				ANTENNA				
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			QUAL BY	REMARKS	TEST SCHED START COMPL
			ENGR	IDE	INSTL			
27-12507-3	77D	Antenna Assembly,				BOS	(5-61)	Approved on the basis of similarity to the -1 unit which has been preproduction tested.  Dash one and dash three are identical electrically as well as mechanically. Dash one is used on Pod-1 and dash three is used on Pod-2.
- - - - -	88D	TLM/RSC, (B-2 Pod)						
(27-01202)	93D							
GD / A	100D							
27-12507-3	103D							
	107D							
	109D							
	113D							
	130D							
	144D							
	152D							
	167D							
		QC DI						

27-12507

MERCURY TEST SUMMARY				ANTENNA					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			QUAL BY	REMARKS	TEST SCHED	
			ENGR	IDE	INSTL			START	COMPL
27-35026-1	77D	Antenna Assembly,				BOS	(5-61)		Completed
- - - - -	88D	Azusa					Approved on the basis of similarity to		
- - - - -	93D						27-35022-3, which has been flight proof		
GD / A	100D						tested.		
27-35026	103D								
	109D								
	113D								
	130D								
	144D								
	152D								
	167D								
	107D								
		QCDI							

MERCURY TEST SUMMARY				ANTENNA					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPB			QUAL BY	REMARKS	TEST SCHED	
			ENGR	IDE	INSTL			START	COMPL
27-37000-1	77D	Antenna Assembly,				BOS	(5-61)	Completed	Sept. 1960
- - - - -	88D	Mod III Guidance					Approved on the basis of similarity to 27-36010-1 and 27-36006-1 which have been flight proof tested (Test Report numbers 27A2444, dated 10-11-60 and 7A2131, dated 9-6-60).		
GD/A	93D								
27-37000-1	100D						Assembles into the 27-37005-1 assembly.		
		QC DI							

27-37000



MERCURY TEST SUMMARY												ANTENNA		
PART NUMBER		SPEC CONTROL	PROC SPEC	VENDOR NAME	VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD			CRIT COMP	QUAL BY	REMARKS	TEST SCHED
								APPB	INSTR	ENGR				START COMPL
27-37000-5						103D	Antenna Assembly, MOD III Guidance					BOS	(10-61)  Approved on the basis of similarity to 27-36010-1 and 27-36006-1 which have been flight proof tested (Test report numbers 27A2444, dated 10-11-60 and 7A2131, dated 9-6-60).  Assembles into the 27-37005-3 assembly.  The -5 is the same as -3 except that window 27-36002-3 is replaced by 27-36002-1.	Complete Sept. 1969
- - - -					107D									
- - - -					113D									
GD/A					130D									
27-37000-5					144D									
					152D									
					167D									
														QC DI

MERCURY TEST SUMMARY					ANTENNA			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR ENGR INSTL	CRIT COMP	QUAL BY	REMARKS	TEST SCHED	
							START	COMPL
27-61382-1 - - - - - - - - GD / A 27-61382-1	100D	Waveguide, Mod III Guidance (pulse beacon to antenna)			0th	(5-61) Validation testing has been conducted at GD / A Radiation Lab. No environmental testing is required.	Completed	

27-61382



[illegible]

MERCURY TEST SUMMARY					ANTENNA			
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR		CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			ENGR	INSTL				START COMPL
27-61383-1		Waveguide, Mod III Guidance (Transition)				0th	(5-61) Validation testing has been conducted at GD/A Radiation Lab. No environmental testing is required.	Completed
- - - - -								
GD/A	100D							
27-61383-1								

MERCURY TEST SUMMARY						ANTENNA	
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR ENG IDE INSTL	CRT COMP	QUAL BY	REMARKS	TEST SCHED START COMPL Complete
27-61383-3	77D	waveguide, MOD III			Oth	(10-61)	
- - - - -	88D	Guidance				Validation testing was conducted at GD/A radiation lab. No environmental testing is required.	
- - - - -	93D	(Transition)				The -3 is the same as -1 except for the addition of boss 27-36217-7.	
GD/A	103D						
27-61383-3	107D						
	109D						
	113D						
	130D						
	144D						
	152D						
	167D						

MERCURY TEST SUMMARY				ANTENNA					
PART NUMBER SPEC CONTROL PROC SPEC VENDOR NAME VENDOR P/N	EFFECTIVITY	NOMENCLATURE	MAD APPR			CRIT COMP	QUAL BY	REMARKS	TEST SCHED
			ENGR	IDF	INSTL				START COMPL
27-61384-1	77D	Wave Guide,					0th	(5-61)	Completed
- - - -	88D	Mod III Guidance						Validation testing has been conducted at	
- - - -	93D	(Structure to rate						GD/A Radiation lab. No environmental	
GD/A	100D	beacon)						testing is required.	
27-61384-1	103D								
	107D								
	109D								
	113D								
	130D								
	144D								
	152D								
	167D								
		QCDI							